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Verification Report

for

Ferry Island (Plot B)
Tottenham Hale
Heart of Hale Lane
London
N17 9LP

(ref. TJ3994IR1v1.0)

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Revision Record

Ref	Version	Date	Description	Prepared by	Approved by
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LIST OF ABBREVIATIONS

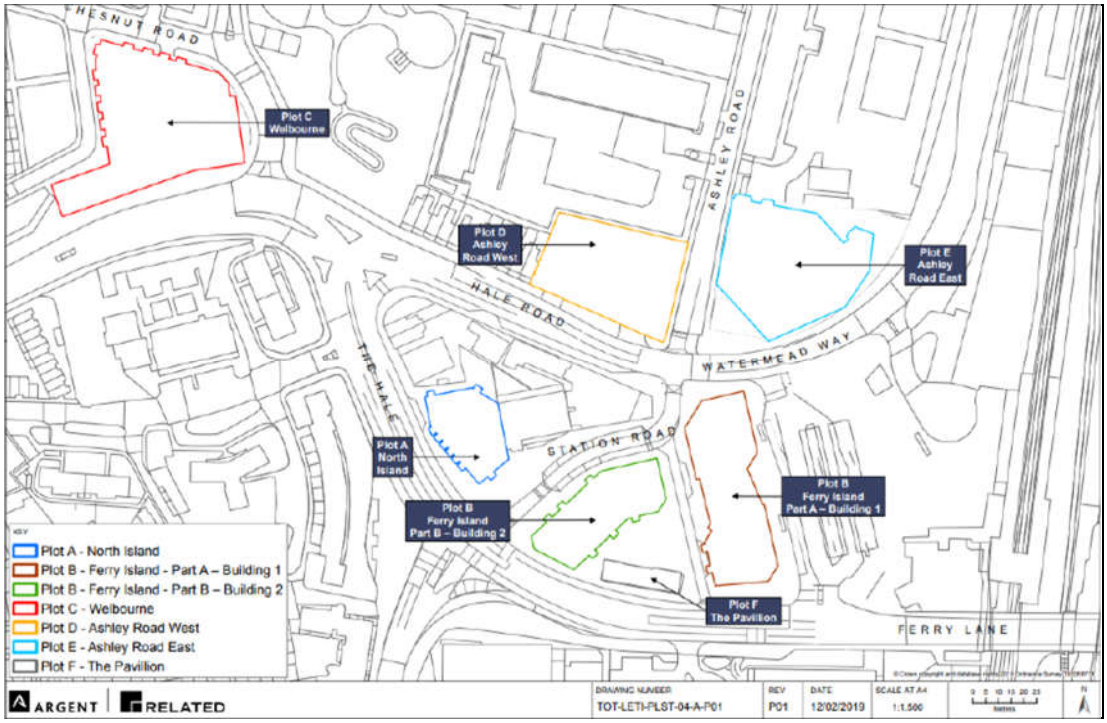
ACM	Asbestos Containing Material
Al	Aluminium
AONB	Area of Outstanding Natural Beauty
AoPC	Area(s) of Potential Concern
AST	Above Ground Storage Tank
BaA	Benzo(a)anthracene
BaP	Benzo(a)pyrene
BbF	Benzo(b)fluoranthene
BGS	British Geological Survey
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene & Xylene
CAT	Cable Avoidance Tool
CD&E	Construction, Demolition & Excavation
Chy	Chrysene
CLEA	Contaminated Lane Exposure Assessment
CSM	Conceptual Site Model
CWG	California Working Group
C4SL	Category 4 Screening Levels
DEFRA	Dept. for Environment, Food & Rural Affairs
DQRA	Detailed Quantitative Risk Assessment
E	East
EA	Environment Agency
ERA	Environmental Risk Assessment
EU	European Union (Council/Commission etc.)
FRA	Flood Risk Assessment
GAC	Generic Assessment Criteria
GQA	General Quality Assessment
GQRA	Generic Quantitative Risk Assessment
ha	Hectare(s)
IcdP	Indeno(123-cd)pyrene
LLTC	Low Level of Toxicological Concern
LNR	Local Nature Reserve
LoW	List of Wastes
m	Metre(s)
mAOD	Metres Above Ordnance Datum
mbgl	Metres Below Ground Level
MTBE	Methyl Tert-Butyl Ether
MCERTS	EA Monitoring Certification Scheme
N	North
NGR	National Grid Reference
NNR	National Nature Reserve
NP	National Park
NVZ	Nitrate Vulnerable Zone
PAH	Polyaromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCoC	Potential Contaminants of Concern
PE	Polyethylene
PFS	Petrol Filling Station
PID	Photo Ionisation Detector
POS	Parks and Open Spaces
PPE	Personal Protective Equipment
PRA	Preliminary Risk Assessment
PVC	Polyvinyl Chloride
RBMP	River Basin Management Plan
RMS	Risk Management Strategy
RWFD	Revised Waste Framework Directive
RWL	Resting Water Level
S	South
S4UL	Suitable 4 Use Levels
SAC	Special Area of Conservation
SGV	Soil Guideline Value
SNRHW	Stable Non-Reactive Hazardous Waste
SPA	Special Protection Area
SPL	Significant Pollutant Linkage
SPR	Source-Pathway-Receptor
SPZ	Source Protection Zone
SSAC	Site Specific Assessment Criteria
SSSI	Site of Special Scientific Interest
SVOC	Semi Volatile Organic Compounds
TGEN	Terragen Environmental Consultants Limited
TOC	Total Organic Carbon
TP	Trial Pit
TPH	Total Petroleum Hydrocarbons
UCL_{95}	Upper Confidence Limit (95%)
UK	United Kingdom
UKAS	UK Accreditation Service
UKEA	UK Environment Agencies
UN	United Nations
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
W	West
WAC	Waste Assessment Criteria
WFD	Water Framework Directive
WS	Window Sampler

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1.0 INTRODUCTION

TGEN was commissioned by Midgard Limited (MGL) to prepare a Verification Report for the development at Ferry Island (Plot B), Tottenham Hale, Heart of Hale Lane, London N17 9LP (the site).

2.0 SITE INFORMATION

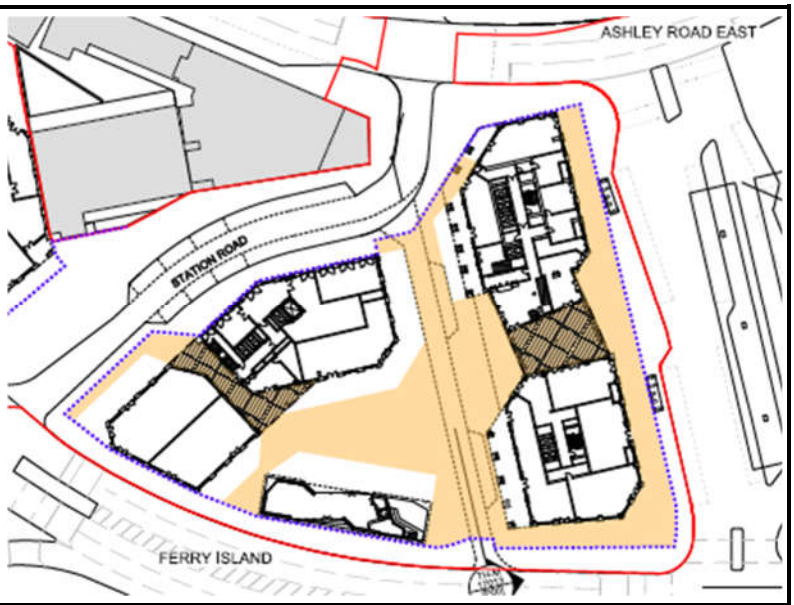
Site Address	Ferry Island (Plot B), Tottenham Hale, Heart of Hale Lane, London N17 9LP.
NGR	TQ 34369 89514.
Site Location Previous Use	The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East, and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared, and a new road junction constructed, in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut, and Maplin, with associated car parking.  The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

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3.0 PROPOSED DEVELOPMENT

Proposed Development

The development at Ferry Island (Plot B) covers an area of circa 1.55ha and includes the construction of two buildings between 7 and 38-storeys in height with a single storey basement connecting the two buildings and associated public realm space. Building 1 will include 376 build to rent apartments with ground floor shell and core retail units. Building 2 will include 108, private, for sale apartments, also with shell and core retail units within the ground floor.



Planning permission (ref. HGY/2018/2223 dated 27/03/2019) was granted by the London Borough of Haringey (the local authority) for demolition works and clearance of the existing site(s) to provide a mixed-use development comprising six buildings up to 38-storeys in height, which together with pavilion and basement accommodation will provide up to 104,053m2 of floorspace (GIA), comprising residential (Use Class C3) (up to 1,036 units), retail (Use Class A1-A4), health centre (Use Class D1), office (Use Class B1), leisure (Use Class D2) parking and servicing areas, hard and soft landscaping (including the provision of a new public square), highways works, creation of new vehicular accesses and the realignment of Station Road, decentralised energy network works and other associated works.

The decision was subject to conditions, including those related to land contamination, which can be summarised as follows:

- **B19) Monitoring and Maintenance Plan Contamination (Environment Agency)**
  The Plot B development hereby permitted may not commence other than for investigative works until a monitoring and maintenance plan in respect of contamination within Plot B, including a timetable of monitoring and submission of reports to the local authority, has been submitted to, and approved in writing by, the local authority. Reports as specified in the approved plan, including details of any necessary contingency action arising from the monitoring, shall be submitted to, and approved in writing by, the local authority.
- **B20) Contamination Not Previously Identified (Environment Agency)**
  If during development, contamination not previously identified is found to be present at Plot B then no further development in respect of that Plot (unless otherwise agreed in writing with the local authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the local authority. The remediation strategy shall be implemented as approved within Plot B.
- **B24) Contaminated Land – Part 1 (LBH Environmental Health)**
  Prior to the commencement of the development on Plot B (other than for investigative work):
  a) Using the information obtained from the previous assessments, an additional site investigation, sampling and analysis shall be undertaken at the Plot as appropriate. The investigation must be comprehensive enough to enable: i) A risk assessment to be undertaken, ii) Refinement of the Conceptual Model, and ii) The development of a Method Statement detailing the remediation requirements. The risk assessment and refined Conceptual Model shall be submitted, along with the site investigation report, to the local authority.
  b) If the risk assessment and refined Conceptual Model indicate any risk of harm, a Method Statement detailing the remediation requirements in respect of the Plot, using the information obtained from the site investigation, and also detailing any post remedial monitoring shall be submitted to, and approved in writing by, the local authority prior to that remediation being carried out on the Plot.
- **B25) Contaminated Land – Part 2 (LBH Environmental Health)**
  Where the contaminated land condition above demonstrates that remediation of contamination on the Plot is required, completion of the remediation detailed in the Method Statement shall be carried out and a report that provides verification that the required works have been carried out, shall be submitted to, and approved in writing by the local authority before the development is occupied within Plot B.

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4.0 PREVIOUS INVESTIGATIONS

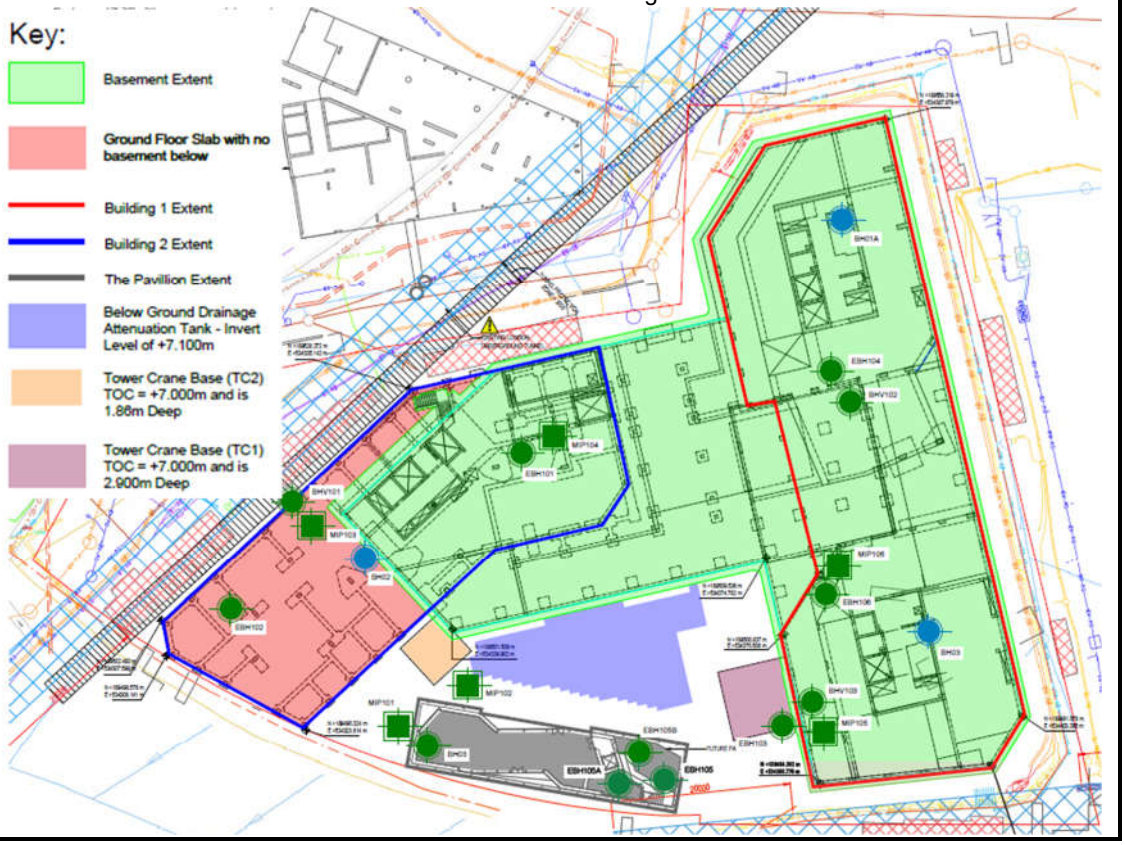
This section comprises a summary of several previous investigations and reports for the wider THC development site and Plot B, which should be read in conjunction with this Verification Report, including:

- BuroHappold Engineering Ltd (August 2016) Tottenham Hale Masterplan, Phase I Geoenvironmental Desk Study (unseen but referred to in various site investigation reports.).
- Whitby Wood Limited (August 2018) Tottenham Hale Development Geotechnical Interpretative Report (ref. P450040-REP-004).
- Whitby Wood Limited (November 2021) Tottenham Hale Development Geo-Environmental Interpretative Report – 2020 (ref. P450040-REP-010).
- JRL Midgard Limited (September 2022) Construction Environmental Management Plan (CEMP) and Construction Logistics Plan (CLP) (ref. TN: BO-JRLG-BM-XX-FM-Z-0006_A1_C02)
- Concept Site Investigations (September 2022) Ferry Island. Ground Investigation Report – Factual (ref. 22/3722-GIR-F01).
- JRL Civil Engineering Limited (October 2022) Method Statement – CFA Piling (ref. T22001-SSOW#001).
- Card Geotechnics Limited (November 2022) Technical Note of Findings of Additional Ground Investigation (ref. CG/39277A).
- Card Geotechnics Limited (November 2022) Plot B, Ferry Island. Remediation Strategy (ref. CG/39277A Rev.1).
- Card Geotechnics Limited (January 2023) Ferry Island Plot B – revised Capping Import Specification. (ref. CG/39277A).
- Card Geotechnics Limited (October 2023) Tottenham Hale, Ferry Island – Discharge of Conditions (ref. CG/39277A).
- Card Geotechnics Limited (January 2024) Ferry Island Plot B RMS – Discharge of Conditions (ref. CG/39277A).

The above reports have been subject to review by the statutory authorities (e.g. The Environment Agency). A full summary of the dialogue between the statutory authorities and authors is beyond the scope of this Verification Report, but can be found, published on the local authority planning portal.

Basement Layout and Excavation Arisings

As noted in Section 3.0, the development includes a single storey basement connecting the two buildings and below ground surface water attenuation tanks. The basement finished floor level is 3.85mOD. It is assumed that the excavation will need to be in the order of 5-7m deep to account for the construction thickness of the basement floor as well as the basement height. The basement extent is shown below:



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	We understand that as part of the development, initially there was a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations, and a deep basement excavation, which generated in total circa 26790m^3 of material for disposal from site as waste. Of those arisings, circa 7170m^3 (27%) were made ground, of which circa 2870m^3 were pile mat and hardstanding, and circa 19620m^3 (73%) was uncontaminated and inert natural soil and pile arisings. It is noted that there are underground storage tanks (UST) recorded in the S of the wider Ferry Island site. These are outside of the Plot B boundary within the footprint of Plot F (the Pavilion) and will be addressed during the Plot F redevelopment works. We understand this area has been subject to a separate investigation and is supported by a separate Remediation Strategy.
Site Investigation(s) Summary	During the previous site investigations, the strata encountered typically comprised made ground, on average circa 1.7m thick, containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations, but it was detected at low concentrations in several samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel, and London Clay. During the 2018 and 2021 investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl. Occasionally elevated concentrations of lead and PAH (BbF, BaP and DahA) were reported above residential GAC, the majority of which were within the footprint of the proposed deep basement (circa 5-7m deep) and/or the circa 0.5m deep reduced level excavation to accommodate the piling platform. During the later 2022 investigation, an additional eighteen soil samples were also collected and analysed. Of the eighteen samples analysed, concentrations of BbF, BaP and DahA marginally exceeded the residential GAC in one sample collected from BH03 @ 0.3mbgl. This sample was within the basement excavation footprint and was removed during the construction works, thereby removing the source and risk to future site users. Asbestos fibres were not detected in any of the soil samples analysed during the 2022 investigation. The basement excavation will encounter groundwater within the Made Ground, Enfield Silt and Kempton Park Gravels. To discharge the groundwater arising from dewatering the basement excavation may require either a permit from Environment Agency (EA) for disposal to surface water/groundwater or a permit from Thames Water to discharge to sewer. Analysis of the groundwater from beneath the site indicates that although historically there have been some elevated concentrations of contaminants (e.g. for mercury, chloride, copper, manganese, ammonia TPH, trichloroethene, and dichlorobenzenes) the most recent two sampling rounds (2022 and 2020) did not report concentrations of contaminants above the detection limit. It is possible that some additional confirmatory analytical testing of water within the excavation may be required prior to discharge to sewer. Overall, the removal of the Made Ground during excavation of the basement, dewatering and treatment will likely aid the betterment of the groundwater situation at the site. Three rounds of gas monitoring were undertaken. Methane (CH_4) concentrations were below the instrument detection limit in all seven monitoring wells, and the maximum carbon dioxide (CO_2) concentration was 1.8% in EBH106. The gas flow rates were recorded above the instrument's limit of detection. The groundwater level was also noted to be above the slotted section of the monitoring well in EBH103 during each visit and therefore CGL considered the monitoring results from this location to not be representative of the gassing regime of the site. Based on the monitoring undertaken, the maximum hazardous gas flow rate is <0.0001l/hr for CH_4 and 0.0021l/hr for CO_2. The site was considered as Characteristic Situation 1 (CS1), where gas protection measures are not required. In addition, almost 80% of the Plot B footprint was to be excavated for the basement, thereby removing most of the potential soil source. Soil samples analysed generally recorded concentrations below the relevant thresholds for water supply pipes. However, concentrations of aliphatic and aromatic hydrocarbons within the EC_{16} to EC_{40} range were recorded that exceeded the limit of 500 mg/kg. However, it was considered that these materials were due to be excavated and as such, based on soil concentrations from the site, barrier pipes were unlikely to be required.
Remediation Strategy	A remediation strategy (ref. CG/39277A Rev 0 dated September 2022) was prepared by Card Geotechnics Limited, which was submitted to the local authority in respect of the matters reserved by Conditions B19 and B24. In summary, the recommended measures included: • Enabling works including site stripped by 0.5m depth and replaced with a 'clean' engineering fill to create a suitable construction platform. (Completed and to be verified if required one works complete). • Basement excavation. The basement and below ground surface water attenuation tank will cover almost 80% of the footprint of Plot B and will extend to the underlying London Clay. The excavated superficial deposits will be removed from site. • Provision of a capping layer and/or growth medium in areas of soft landscaping (inclusive of ground level and rooftop level areas of soft landscaping). • Selection of appropriate materials for buried water supply pipes. Based on the soil results barrier pipes may not be required but it is recommended that this is confirmed with the local water authority.

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	• Watching brief by and Environmental Consultant and implementation of a discovery strategy during enabling works and general earthworks in the event unexpected contamination is identified, and to facilitate appropriate waste characterisation of soils for disposal. • Materials management. • Implementation of appropriate protection of construction workers and mitigation of risks to offsite receptors from generation of dust and odours.
Capping Import Criteria	As part of the statutory consultation process, the EA raised several queries in relation to the criteria for soils imported to site to be used as capping in areas of soft landscaping. Card Geotechnics Limited (January 2024) prepared a revised capping import specification. It was noted that soils to be used as capping in areas of soft landscaping will be a purchased product from a reputable supplier of clean, naturally occurring soils. The proposed volumes of soil imported for the areas of soft landscaping is very small and includes: • Ground floor: Topsoil – 232.6m^3; Subsoil – 348.9m^3 • Building 1, Level 7: Topsoil – 11.18m^3; Subsoil – 13.03m^3 • Building 1, Level 19: Topsoil – 12.06m^3; Subsoil – 12.06m^3 • Building 2, Level 7: Topsoil – 31.72m^3; Subsoil – 36.65m^3 Layout plans showing the extent and locations of the soft landscaping areas are given in Appendix B. These are proposed for use in four areas, three of which are at podium levels so drainage will be controlled and there will be no percolation / infiltration to groundwater. As required by the remediation strategy, the imported soils are to be sampled and tested to confirm they meet the required import specification, a copy of which is presented in Appendix C. The topsoil is to be certified to BS3882 and will not contain waste products. At ground floor level, the soils will be limited to small, landscaped tree pit areas around the site boundary, and these too will be sampled and tested prior to use at the site. Many of the tree pits are lined with root barriers at the base.
Verification Plan	Within the remediation strategy, the requirements for validation and verification were set out within a Verification Plan, which can be summarised as follows: • Site inspections and compliance testing will be carried out during the works by a suitably qualified geoenvironmental engineer for the various elements of the remediation works. • Site inspection records, photographs, and testing should unexpected contamination be encountered. • Inspect the topsoil/subsoil capping layer construction and verify placement and thickness of the capping layer including obtaining photographic evidence of the topsoil/subsoil capping layer construction. • Sample and test imported capping layer soils (and site won natural soils if appropriate) to confirm compliance with the specification (Appendix C), including review of source data prior to import of material to site. Documentation required to be provided by the contractor will include, but not be limited to: • As built drawings. • Duty of care records for the disposal of soils / asbestos containing materials. • Source data and pre-import laboratory data of imported topsoil/subsoil. • Specification of water supply pipes used (including confirmation from the water supply company of their acceptance of the material used). • Material management procedures (i.e. permits, exemption etc.) as appropriate. • Discovery records or statement confirming no significant observations of contamination. • On completion of the remediation works, a Verification Report will be prepared. This report should detail the works undertaken and should include copies of relevant information listed above including waste transfer records, test results, inspection records, and source certificates for imported materials (if required).

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5.0 STATUS, FRAMEWORK AND REMIT

Framework	The Land Contamination: Risk Management Guidance (EA, May 2020) outlines how to assess if there is unacceptable risk and to decide which options are the most suitable to manage the risk through the implementation of remediation (if necessary). The process involves identifying, making decisions on, and taking appropriate action to deal with, land contamination in a way that is consistent with government policies and legislation within the UK. Environmental assessors use a SPR conceptual site model when determining the risk posed by a potentially contaminated site. For potential risk to arise each stage of the SPR linkage must be present, plausible, and significant. Our approach follows the framework provided in the guidance, the stages, and tiers of which can be briefly summarised as follows: • **Stage 1 Risk Assessment (RA)** Tier 1: Preliminary Risk Assessment (PRA). Tier 2: Site Investigation and Generic Quantitative Risk Assessment (GQRA). Tier 3: Detailed Quantitative Risk Assessment (DQRA). • **Stage 2 Options Appraisal (OA)** Decide if sufficient up to date information is available. Tier 1: Identify feasible remediation options. Tier 2: Detailed evaluation of options. Tier 3: Selection of final remediation option. • **Stage 3 Remediation Strategy (RS)** Tier 1: Develop a Remediation Strategy. Tier 2: Remediation and Verification. Tier 3: Long term monitoring and maintenance (if required).
Statutory Consultation	The site investigation reports and remediation strategy were submitted to the local authority with an application to discharge the matters reserved by Condition B19 (Monitoring and Maintenance Plan) and B24 (Contaminated Land Part 1) of the planning permission. Approval was granted by the local authority (ref. HGY/2022/0779 dated 14/08/2023), a copy of which is presented in Appendix D. The approval was subject to an informative requiring the applicant to address the issue in relation to the importation criteria as raised by the EA prior to Condition B24 being discharged in full. The CEMP and CLP were submitted to the local authority with an application to discharge the matters reserved b Condition B29 (Demolition/Construction Environmental Management Plans) of the planning permission. Approval was granted by the local authority (ref. HGY/2022/2460 dated 24/11/2022), a copy of which is presented in Appendix E Subsequently, the Card Geotechnics Limited revised capping import specification was submitted with an application to discharge the remaining matters reserved by Condition 24 (Contaminated Land Part 1) of the planning permission. Approval was granted by the local authority (ref. HGY/2023/2212 dated 13/03/2024), a copy of which is presented in Appendix F.
Remit	Our remit was to carry out a programme of routine site inspections as part of the watching brief, recover validation samples and compile records gathered by JRL and Midgard in accordance with the requirements of the Verification Plan to present in a Verification Report to address the matters reserved by Conditions B20 (Contamination Not Previously Identified) and B25 (Contaminated Land – Part 2) of the planning permission.

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6.0 VALIDATION RECORDS

6.1 Personnel, Briefings and Competence

CEMP	In accordance with the matters reserved by Condition B29, JRL compiled a CEMP, which outlined risks and control measures (noise, dust, unexpected contamination, vibration etc.) to be implemented during the development. A copy of the approved CEMP is presented in Appendix G.
Toolbox Talk	During the works, JRL delivered a toolbox talk to all operatives prior to their start onsite, a copy of which together with a signed register, is presented in Appendix H. The toolbox talks included details in respect of hazards, risks and control measures associated with contaminants commonly encountered at construction and demolition sites.

6.2 Site Inspection Records

Watching Brief and Routine Reassurance Sampling Visits

As part of the watching brief, TGEN carried out a programme of routine site visits to inspect the arisings being generated by the enabling works. During these visits reassurance samples were taken of the material being disposed offsite and/or imported to site for use in the temporary piling platform. Copies of the individual inspection reports are presented in Appendix I, which are summarised in the table below.

Visit	Date	Summary
Visit 1	13/09/2022	During the inspection visit, three samples of made ground (general excavation arisings) and one sample of tarmac were taken and submitted for testing to confirm the disposal classification.
Visit 2	11/10/2022	During the inspection visit, three samples of made ground (general arisings) were taken and submitted for testing to confirm the disposal classification.
Visit 3	23/11/2022	During the inspection visit, three samples of made ground (general arisings) and one sample of natural ground (piling arisings) were taken and submitted for testing to confirm the disposal classification.
Visit 4	30/11/2022	During the inspection visit, three samples of made ground (arisings from the excavation of the water attenuation tanks) and one sample of natural ground (piling arisings) were taken and submitted for testing to confirm the disposal classification.
Visit 5	09/12/2022	During the inspection visit, three samples of made ground (general arisings) were taken and submitted for testing to confirm the disposal classification, and one sample of aggregate (imported 6F5) was taken and submitted for testing to confirm suitability for reuse onsite. The imported aggregate was subsequently disposed offsite as waste.
Visit 6	14/12/2022	During the inspection visit, three samples of made ground (general arisings) were taken and submitted for testing to confirm the disposal classification.
Visit 7	21/12/2022	During the inspection visit, three samples of natural ground (piling arisings) were taken and submitted for testing to confirm the disposal classification, and one sample of aggregate (imported 6F5) was taken and submitted for testing to confirm suitability for reuse onsite. The imported aggregate was subsequently disposed offsite as waste.
Visit 8	04/01/2023	During the inspection visit, two samples of natural ground (piling arisings) were taken and submitted for testing to confirm the disposal classification.
Visit 9	12/10/2023	During the inspection visit, three samples of made ground (general arisings) and one sample of natural ground (piling arisings) were taken and submitted for testing to confirm the disposal classification.
Visit 10	19/10/2023	During the inspection visit, three samples of made ground (general arisings) and one sample of natural ground (piling arisings) were taken and submitted for testing to confirm the disposal classification.
Visit 11	26/10/2023	During the inspection visit, two samples of made ground (general arisings) were taken and submitted for testing to confirm the disposal classification.
Visit 12	02/11/2023	During the inspection visit, two samples of made ground (general arisings) and three samples of natural ground (piling arisings) were taken and submitted for testing to confirm the disposal classification.
Visit 13	09/11/2023	During the inspection visit, two samples of made ground (general arisings) and three samples of natural ground (piling arisings) were taken and submitted for testing to confirm the disposal classification.
Visit 14	16/11/2023	During the inspection visit, two samples of made ground (general arisings) and two samples of natural ground (basement excavation/piling arisings) were taken and submitted for testing to confirm the disposal classification.

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	Visit 15	23/11/2023	During the inspection visit, two samples of made ground (general arisings) and two samples of natural ground (basement excavation/piling arisings) were taken and submitted for testing to confirm the disposal classification.
	Visit 16	30/11/2023	During the inspection visit, two samples of made ground (general arisings) and two samples of natural ground (basement excavation/piling arisings) were taken and submitted for testing to confirm the disposal classification.
	Visit 17	07/12/2023	During the inspection visit, two samples of made ground (general arisings) and two samples of natural ground (basement excavation/piling arisings) were taken and submitted for testing to confirm the disposal classification.
	Visit 18	14/12/2023	During the inspection visit, two samples of made ground (general arisings) and two samples of natural ground (basement excavation/piling arisings) were taken and submitted for testing to confirm the disposal classification.
	Visit 19	19/12/2023	During the inspection visit, two samples of made ground (general arisings) and two samples of natural ground (basement excavation/piling arisings) were taken and submitted for testing to confirm the disposal classification.
	Visit 20	15/01/2024	During the inspection visit three samples of natural ground (basement excavation) were taken and submitted for testing to confirm the disposal classification.

Hotspot Validation Sampling Visits

A previous waste classification assessment undertaken by Powell Associates Limited (ref. JRLEFIWCR1 dated 22/02/2022) identified hazardous soil and stones (LoW Code 170503*) at two locations:

- *BHV102 @ 0.0mbgl and 0.3mbgl due to elevated total petroleum hydrocarbons (TPH).*
- *EBH105B @ 2.5mbgl due to elevated TPH.*

As part of the enabling works, visually impacted materials deemed hazardous at the two locations to were removed. A geo-environmental engineer from TGEN visited the site to assess the nature of the strata encountered. During the visit, samples of materials were recovered from the four sides (N, S, E and W) and the base (B) of each of the excavations to demonstrate that the hazardous material had been successfully removed or, if not, that additional excavation was required to extend the excavation laterally and/or vertically in order to remove additional materials. A copy of the site inspection report relating to the validation sampling is presented in Appendix J, which is summarised in the table below:

Visit	Date	Summary
Visit 1	13/09/2022	Ten validation samples taken from around the sides and base of remedial excavations at BHV102 and EBH105B. There was no significant odour in the soils around the base and sides of the excavation and the PID readings were <1ppm. The samples of soil from around the perimeter and base of the hotspot excavation at BHV102 returned low concentrations of TPH and PAH. None of the concentrations would be considered hazardous and demonstrated the successful removal of the previously identified hazardous TPH contamination at this location. The samples of soil from around the perimeter and base of the hotspot excavation at EBH105 returned low concentrations of TPH and generally low concentrations of PAH. At two locations (S face and Base) the samples returned slightly elevated concentrations of PAH. None of the concentrations returned by the samples would be considered hazardous and as such, whilst there is some residual contamination in the made ground at this location, the results demonstrate the successful removal of the previously identified hazardous TPH contamination at this location.

Formation Inspection Sampling Visits

At the completion of the basement excavation, site visits were carried out to inspect and recover samples from the soils remaining in-situ at formation level. Copies of the individual inspection reports are presented in Appendix K, which are summarised in the table below.

Visit	Date	Summary
Visit 1	08/02/2024	During the formation level inspection visit, four samples of natural ground (London Clay) at formation level were taken and submitted for testing to confirm suitability for reuse onsite.
Visit 2	04/03/2024	During the formation level inspection visit, three samples of natural ground (London Clay) at formation level were taken and submitted for testing to confirm suitability for reuse onsite.

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6.3 Duty of Care Records

During the works undertaken by JRL and Midgard, between 14/09/2022 and 30/03/2026, a total of 33,511 tonnes of waste soil and stones, tarmac and were disposed offsite as waste. In addition, a total of 2262 loads of non-waste soil (naturally occurring soil and mineral material) were directly transferred from the site to a receiver site operating a Materials Management Plan (MMP) in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP). The duty of care records are summarised in the following sections.

6.3.1 Waste Carriers

The table below summarises the details of the waste carriers used during the groundworks to remove arisings from the site. A copy of the waste carriers license (WCL) for each carrier is presented in Appendix L.

Carrier	WCL	Valid From	Valid To
JRL Environmental Limited	CBDU86520	21/09/2022	04/02/2025
	CBDU569104	05/02/2025	05/02/2028

6.3.2 Waste Transfer Notes

A summary of the waste disposal facilities and receiving sites is presented in Section 6.3.4 and a selection of waste transfer notes (WTN) for the various receiving sites is presented in Appendix M. Full copies of the WTN are available from JRL/MGL on request.

6.3.3 Hazardous Waste Consignment Notes

As detailed in Section 6.2, two hotspots of hazardous waste were identified at BHV102 and EBH105B, both due to elevated hydrocarbons. Upon confirmation of the success of the validation exercise, on 13/10/2022, two loads of hazardous waste (LoW Code 170503*) were disposed offsite to the Keltbray Environmental Limited facility at Mohawk Wharf. Copies of the consignment notes are presented in Appendix N.

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6.3.4 Waste Disposal Facilities and Receiving Sites

The table below summarises the details of the sites/facilities waste arisings from the site was sent to during the groundworks. A copy of the permit for each receiving site is presented in Appendix O.

Receiving Sites	Material Type	Haulier	Tonnage	Date From	Date To	Environmental Permit Ref	Facility Type
Queen Mary Reservoir Recycling Facility, Ashford Road, Laleham, Staines, TW18 1QF	Ballast	JRLE	132.26	23/10/2023	12/12/2023	EPR/EB3732RR	Store and treat waste to produce soil, soil substitutes, and aggregates
Rainham Recycling Facility, Launders Lane, Rainham, Essex, RM13 9GJ	Ballast	JRLE	4,096.72	23/10/2023	23/01/2024	EPR/DB3501KS	
Silt Lagoons at Rainham and Wennington Marshes, Cold Harbour Lane, Rainham, RM13 9YQ	Ballast	JRLE	20.58	23/10/2023	23/10/2023	EPR/FB3701XY	Landfill for non-hazardous waste including inert waste and landfill restoration
	Non-Hazardous Soil and Stones	JRLE	18.00	10/01/2023	10/01/2023		
	Soil and Stone	JRLE	11,898.00	21/09/2022	03/02/2023		
Perry Road Recycling Facility, Perry Road, Off Chequers Lane, Dagenham, RM9 6QD	Ballast	JRLE	144.00	23/10/2023	09/11/2023	EPR/DB3502TZ	Treatment of waste to produce soil, soil substitutes, and aggregates
	Tarmac Away	JRLE	18.00	15/09/2022	15/09/2022		
DB Schenker Rail (UK) Limited, Marshgate Sidings, Pudding Mill Lane, Bow, E15 2PJ	Non-Hazardous Soil and Stones	JRLE	108.00	08/11/2022	12/12/2022	EPR/BP3698EQ	Non-hazardous waste physical treatment facility
GB Railfreight Limited, Upside Railway Yard, Brent Terrace, Cricklewood, NW2 1LN	Non-Hazardous Soil and Stones	JRLE	18.00	29/09/2022	29/09/2022	EPR/AB3200KE	Non-hazardous waste transfer and treatment facility
JRL Environmental, Knights Road, Silvertown, E16 2AT	Screenable Material	JRLE	18.00	27/10/2022	27/10/2022	EPR/WE4202AA	Treatment of waste to produce soil, soil substitutes, and aggregates
	Soil and Stone	JRLE	4,378.84	21/09/2022	03/10/2024		
Sewells Reservoir Construction Limited. Barking Riverside Recycling Centre, Choats Road, Barking, RM9 69RJ	Screenable Material	JRLE	594.22	28/02/2025	30/03/2026	EPR/HB3109CX	Reception, transfer, storage, and processing of non-hazardous and inert waste for recovery
	Soil and Stone	JRLE	78.10	04/10/2024	04/11/2025		
Brett Aggregates Ltd. East Hall Farm, New Road, Wennington, Rainham, RM13 9DS	Soil and Stone	JRLE	6,696.00	15/12/2022	01/03/2024	EPR/EB3201HA	Landfill for inert waste
Lafarge Aggregates Limited, Tyttenhanger Landfill, Coursers Road, London Colney, Hertfordshire	Soil and Stone	JRLE	5,022.00	27/09/2022	08/04/2024	BX3368PN	Landfill
Thames Materials Limited, Thames Materials, Skip Lane, Harvil Road, Harefield, UB9 6RP	Soil and Stone	JRLE	108.00	16/12/2022	16/12/2022	EPR/BB3709TU	Importation, storage, and treatment of waste to produce soil, soil substitutes, and aggregates.
Hanson Quarry Products Europe Limited. Dagenham Dock Aggregate Recycling Facility, Land on Breach Lane, Dagenham, RM9 6QD	Tarmac Away	JRLE	126.00	08/04/2025	18/12/2025	EPR/BB3005TG	Physical treatment including manual and mechanical sorting/separation, crushing, and screening of non-hazardous waste for recovery.
Keltbray Environmental Ltd. Plaistow Wharf, North Woolwich Road, London, E16 2AB	Hazardous Soil and Stones	JRLE	36.00	13/10/2022	13/10/2022	EPR/CP3035QC	Transfer station accepting hazardous and non-hazardous waste
Woodland Environmental Ltd, Canalside Park, Glade Lane, Ealing UB2 4PG	Naturally Occurring Soil & Minerals	JRLE	2262 Loads	19/12/2022	22/10/2025	MMP	CL:AIRE DoWCoP MMP Receiver Site

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6.3 Discharge Water

During the enabling works and basement excavation, it was necessary to carry out a programme of de-watering. Water from the excavation was discharged to the local sewer network via a settlement tank. A copy of the discharge permit is presented in Appendix P.

6.5 Imported Topsoil and Subsoil

<table>
<tr><td rowspan="3">Site Inspection and Topsoil/Subsoil Validation Sampling</td><td colspan="3">As noted in Section 4.0, a small volume of topsoil and subsoil was imported to be placed in areas of landscape planting, primarily composed of concrete, containerised planters above the podium or on the upper floors as shown on the landscape planting plan presented in Appendix B. The volumes imported included:
• Ground floor: Topsoil – 232.6m^3; Subsoil – 348.9m^3
• Building 1, Level 7: Topsoil – 11.18m^3; Subsoil – 13.03m^3
• Building 1, Level 19: Topsoil – 12.06m^3; Subsoil – 12.06m^3
• Building 2, Level 7: Topsoil – 31.72m^3; Subsoil – 36.65m^3
The topsoil and subsoil were certified by the supplier and was subject to a programme of testing validation testing to demonstrate that the soil complied with the capping import criteria. A topsoil/subsoil validation report is presented in Appendix Q and is summarised below:</td></tr>
<tr><td>Visit</td><td>Date</td><td>Summary</td></tr>
<tr><td>1</td><td>07/08/2025</td><td>As part of the supplier certification, the topsoil was tested in accordance with BS3882:2015 Specification for Topsoil and the subsoil was tested in accordance with BS8601:2013 Specification for Subsoil. Both were also tested for a comprehensive suite of potential contaminants.
The topsoil was fully compliant with the requirements of BS3882:2015 for Multipurpose Topsoil. The subsoil was compliant with the requirements of BS8601:2013 for Multipurpose Subsoil except for the pH, which was strongly alkaline. The is common in light, sandy soils, which have a low buffering capacity (i.e., resistance to a change in pH) and it is therefore, not considered to represent a problem for landscape applications, if species tolerant of alkaline, calcareous soils are selected. Both samples returned concentrations that were below the respective thresholds given in the chemical criteria for imported soils and were therefore considered acceptable for use at the site.
Three representative samples of topsoil and three representative samples of subsoil were recovered and submitted to a UKAS/MCERTS accredited laboratory for testing in accordance with the parameters listed in Appendix C.</td></tr>
</table>

6.6 Imported Aggregates

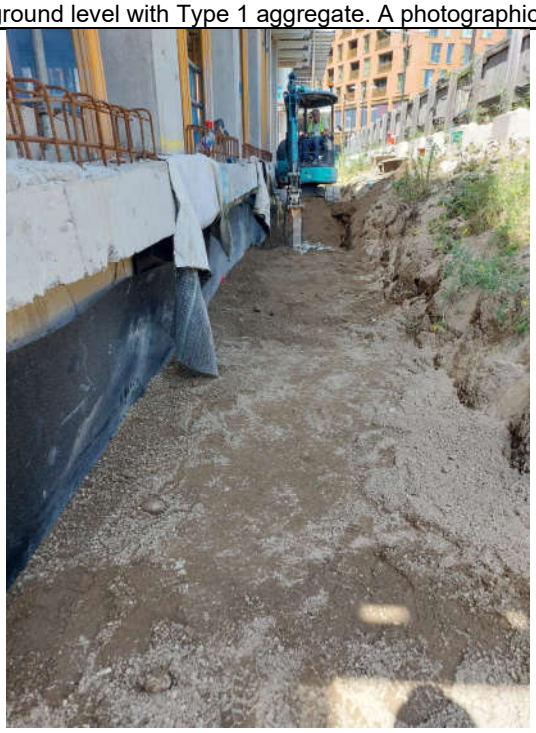
During the development, circa 1200 tonnes of aggregate were imported to the site. Supplier certification for the products is presented in Appendix R.

Supplier	Material Type	Haulier	Tonnes	Date From	Date To
Hanson Aggregates – Dagenham (Appendix R1)	0/4mm Marine Sharp Washed Sand	JRLE	82.54	23/09//24	19/02/25
	10mm Primary Shingle	JRLE	30.24	06/08/25	18/09/25
	20mm Primary Shingle	JRLE	14.52	01/10/25	01/10/25
	MOT Type 1 Crushed Concrete	JRLE	365.20	07/12/22	25/03/26
	4/10mm Marine Graded Gravel	JRLE	9.82	09/02/26	09/02/26
JRL Silvertown (Appendix R2)	6C Stone	JRLE	2325.46	11/11/22	20/02/24
	6F5 Crushed Concrete	JRLE	11718.00	28/09/22	25/07/24
	6N Material	JRLE	978.00	26/10/22	10/10/24
	Recycled Type 1 Concrete	JRLE	506.91	07/12/22	27/09/24
SRC – Sheepscoate (Appendix R3)	Building Sand	JRLE	18.78	23/10/24	23/10/24
SRC – Wembley (Appendix R4)	MOT Type 1 Crushed Concrete	JRLE	132.94	10/10/24	01/11/24
SRC – Barking (Appendix R5)	Recycled Type 1 Concrete	JRLE	59.00	05/11/24	26/11/24
	Reject Sand	JRLE	55.00	10/10/24	06/11/24
Travis Perkins (Appendix R6)	Soft Sand	JRLE	10.00	01/08/24	01/08/24

A selection of delivery notes is presented in Appendix S. Full copies of the delivery notes are available from MGL on request.

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6.7 Water Supply Pipes

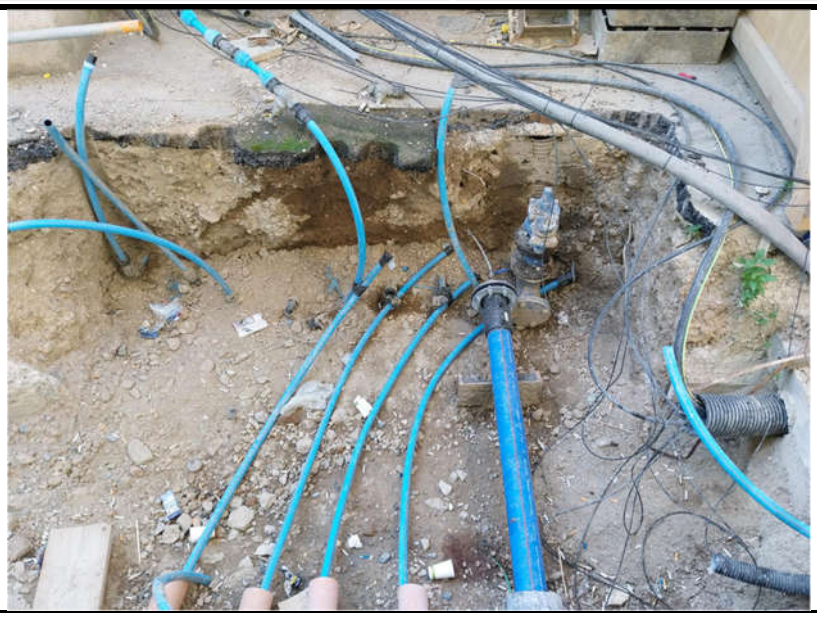
<table>
<tr><td>Site Inspection – Water Supply Pipes</td><td colspan="2">Whilst in accordance with the Remediation Strategy, it was considered that standard PE pipes would be suitable for use at the site, to adopt a conservative approach, JRL/Midgard installed Barrier Pipes. A plan showing the locations of the connections at the site is presented in Appendix T. The route of the water main across the site was below a temporary walkway. The walkway was broken up, and a trench was excavated to accommodate the water supply pipes, The trench was then backfilled with bedding sand and backfilled to ground level with Type 1 aggregate. A photographic record is presented below:</td></tr>
<tr><td rowspan="4">Trench Construction</td><td>  </td><td>  </td></tr>
<tr><td colspan="2">Excavation of the trench for the water supply pipes.</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td colspan="2">Backfilling the water supply pipe trench with bedding sand.</td></tr>
</table>

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Water Supply Pipe Specification

Brand	Puriton®
Approved by	WRAS Approved Material
Standards	BS 8588
Coil Width	1010mm
Colour	Blue
Outside Diameter	32mm
Length	50 m
Material	PE80, Aluminium, PE80 Composite
Max. Pressure	12.5 bar (SDR11)
Pipe Length	50 m
Size	32 mm
Suitable Application	The barrier pipe system of choice for your new or replacement drinking water supply. Puriton® is a cutting edge solution for the safe distribution of drinking water through contaminated land.
Type	Barrier Pipe
Weight	22kg

Photographic Record



Delivery Records

384m of 63mm Protectaline Barrier Pipe and 50m of Puriton II Barrier Pipe together with associated connections (elbow joints, couplings etc.) were delivered to the site, records of which are presented in Appendix U.

6.8 Discovery Strategy, Unexpected Contamination and Developer Declaration

Developer Declaration	As detailed in the CEMP, the remediation scheme implemented by JRL/Midgard included a discovery strategy for unexpected contamination that was implemented during the enabling works phase and construction phase of the development. Except for the expected hazardous soils that were segregated during the basement excavation, no unexpected contamination was encountered. A declaration confirming this is presented in Appendix V.

7.0 REGULATORY APPROVAL

Formal approval should be sought from the local authority regarding the matters reserved by Conditions B20 (Contamination Not Previously Identified) and B25 (Contaminated Land – Part 2) of the planning permission.

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8.0 LIMITATIONS AND USE OF THIS REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations, or conclusions set out in this report.

a) This report has been prepared for the purpose of providing advice to the client pursuant to its appointment of TGEN to act as a consultant.
b) Save for the client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations, or conclusions herein set out.
c) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology, and legislation.
d) Changes in the above may cause the opinion, advice, recommendations, or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations, and conclusions, TGEN has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the client of any such changes, or of their repercussions.
e) TGEN acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. TGEN will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, TGEN shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.
f) The content of this report represents the professional opinion of experienced environmental consultants. TGEN does not provide specialist legal advice, and the advice of lawyers may be required.
g) In the summary and recommendations sections of this report, TGEN has set out our key findings and provided a summary and overview of our advice, opinions, and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by TGEN and therefore any advice, opinions or recommendations set out in the executive summary, summary and recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.
h) The assessments made in this report are based on the ground conditions as revealed by walkover survey and/or intrusive investigations, together with the results of any field or laboratory testing or chemical analysis undertaken and other relevant data which may have been obtained including previous site investigations. In any event, ground contamination often exists as small discrete areas of contamination (hot spots) and there can be no certainty that any or all such areas have been located and/or sampled.
i) There may be special conditions appertaining to the site which have not been accounted for in the report. The assessment may be subject to amendment should additional information becoming available.
j) Where any data supplied by the client or from other sources, including that from previous site investigations, have been used it has been assumed that the information is correct. No responsibility can be accepted by TGEN for inaccuracies within the data supplied by other parties.
k) Whilst the report may express an opinion on possible ground conditions between or beyond trial pit or borehole locations, or on the possible presence of features based on either visual, verbal, or published evidence this is for guidance only and no liability can be accepted for the accuracy thereof.
l) Comments on groundwater conditions are based on observations made at the time of the investigation unless otherwise stated. Groundwater conditions may vary due to seasonal or other effects.
m) This report is prepared and written in the context of the agreed scope of work and should not be used in a different context. Furthermore, new information, improved practices and changes in legislation may necessitate a reinterpretation of the report in whole or part after its original submission.
n) The copyright in the written materials shall remain the property of the TGEN but with a royalty-free perpetual license to the client deemed to be granted on payment in full to TGEN by the client of the outstanding amounts.
o) These terms apply in addition to the TGEN standard terms of engagement (or in addition to another written contract which may be in place instead thereof) unless specifically agreed in writing (In the event of a conflict between these terms and the said standard terms of engagement the said standard terms of engagement shall prevail). In the absence of such a written contract the standard terms of engagement will apply.
p) TGEN maintains adequate insurance cover for public liability and professional indemnity. However, we are unable to accept liability for asbestos related matters. Our work must not be taken as sufficient to identify the presence or absence of asbestos in or on the ground. In placing a contract with us the client accepts the restriction on asbestos. If we find or strongly suspect asbestos is or may be present in or on the ground, we will inform the client and advise specialist investigation. The client agrees that they shall not bring any claim personally against any director / employee or consultant to us in respect of loss or damage suffered by the client arising out of this contract.

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Appendix A
Planning Permission.

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Haringey LONDON

Planning Service

Emma Williamson Assistant Director Planning Service

Mr Matthew Sherwood
Quod
Ingeni Building
17 Broadwick Street
London
W1F 0DE

On behalf of
TH DM Limited
C/O Agent

Planning Application Reference No. **HGY/2018/2223**

TOWN AND COUNTRY PLANNING ACT 1990
TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE) (ENGLAND) ORDER 2015

NOTICE OF PLANNING PERMISSION

Location: **Strategic Development Partnership (SDP) Sites Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West Station Road N17**

Proposal: **Demolition works and clearance of existing site to provide a mixed-use development comprising 6 buildings up to 38 storeys in height, which together with pavilion and basement accommodation will provide up to 104,053m² of floorspace (GIA), comprising residential (Use Class C3) (up to 1,036 units), retail (Use Class A1-A4), health centre (Use Class D1), office (Use Class B1), leisure (Use Class D2) parking and servicing areas, hard and soft landscaping (including the provision of a new public square), highways works, creation of new vehicular accesses and the realignment of Station Road, decentralised energy network works and other associated works.**

In pursuance of their powers under the above Act, the London Borough of Haringey as Local Planning Authority hereby **PERMIT** the above development in accordance with the application dated 30/07/2018 and drawing numbers:

Masterplan

TH-M_ZZ_001_A_17013_P(00)_P001	P 01
TH-M_ZZ_001_A_17013_P(00)_P003	P 01
TH-M_ZZ_001_A_17013_P(00)_P100	P 01
TH-M_ZZ_001_A_17013_P(00)_P101	P 01

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Planning Service
Emma Williamson Assistant Director Planning Service

North Island and Ferry Island

TH-IS_ZZ_001_A_16092_(P00)_P099A	P 01
TH-IS_ZZ_001_A_16092_(P00)_P099B	P 01
TH-IS_ZZ_001_A_16092_(P00)_P100A	P 01
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TH-IS_ZZ_001_A_16092_(P00)_P231	P 01

Welbourne

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TH-WEL-01-001-A-16063-00-101	01
TH-WEL-01-001-A-16063-00-102	01
TH-WEL-01-001-A-16063-00-103	01
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TH-WEL-01-001-A-16063-00-300	00
TH-WEL-01-001-A-16063-00-301	01

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TH-WEL-01-001-A-16063-00-302	01

Ashley Road East

TH-ARE-01-001-A-2452-00-100	00
TH-ARE-01-001-A-2452-00-100M	00
TH-ARE-01-001-A-2452-00-101	00
TH-ARE-01-001-A-2452-00-102	00
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TH-ARE-01-001-A-2452-00-303	00
TH-ARE-01-001-A-2452-00-304	00
TH-ARE-01-001-A-2452-00-305	00

Ashley Road West

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TH-ARW-01-001-A-16098-00-102	00
TH-ARW-01-001-A-16098-00-103	00
TH-ARW-01-001-A-16098-00-301	00
TH-ARW-01-001-A-16098-00-302	00

Pavilion

TH-IS_ZZ_001_A_17040_(00)_P120	P 00
TH-IS_ZZ_001_A_17040_(00)_P200	P 00
TH-IS_ZZ_001_A_17040_(00)_P301	P 00
TH-IS_ZZ_001_A_17040_(00)_P500	P 00

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Emma Williamson Assistant Director Planning Service

Landscaping

North Island and Ferry Island

TH-IS-PR-001-LA-TOT494-(90)-3001 01
TH-IS-PR-001-LA-TOT494-(90)-5001 01

Ashley Road

TH-AR-PR-001-LA-288-(90)-104 P00
TH-AR-PR-001-LA-288-(90)-105 P00

Welbourne

TH-WB-PR-001-LA-283-(90)-104 P00
TH-WB-PR-001-LA-283-(90)-105 P00

Demolition

TH-M_ZZ_001_C_040204_(P00)_P710 P01

The approved documents comprise:

Planning Statement (July 2018) and Addendum (October 2018) prepared by Quod; Arboricultural Impact Assessment and Method Statement (July 2018) and Addendum (October 2018) prepared by RPS; Flood Risk Assessment (July 2018) and Addendum (October 2018) prepared by Whitby Wood; Archaeological Desk Based Assessment (July 2018) prepared by GgMs; Ecological Appraisal (July 2018) prepared by RPS; Environmental Statement (ES) Volumes I – III and Non-Technical Summary (July 2018) and Addendum (October 2018) prepared by Quod.

SEE SCHEDULE OF CONDITIONS ATTACHED

27/03/2019

Dean Hermitage
Head of Development Management and Planning Enforcement
Planning Service

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Planning Service

Emma Williamson Assistant Director Planning Service

NOTE: 1. You can find advice in regard to your rights of appeal at: www.planningportal.gov.uk/planning/appeals/guidance/guidancecontent

2. This notice relates solely to a planning decision and does not purport to convey any approval or consent which may be required under the Building Regulations or any other statutory purpose.
For more information about making a Building Regulations application, please contact Haringey Council Building Control Team by email building.control@haringey.gov.uk, telephone 020 8489 5504, or see our website at www.haringey.gov.uk/buildingcontrol.

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HGY/2018/2223

NOTE

1. The conditions that relate to individual buildings are split between the various "Plots" that form the planning application development identified on Drawing Reference TH-M_ZZ_001_A_17013_P(00)_P003. The Plots comprise the following development:

   "PLOT A" – NORTH ISLAND
   "PLOT B" – FERRY ISLAND
   "PLOT C" – WELBOURNE
   "PLOT D" – ASHLEY ROAD WEST
   "PLOT E" – ASHLEY ROAD EAST
   "PLOT F" – THE PAVILION

2. Other than those 'Conditions relating to the Whole Site' below the subsequent conditions in each Section A – F shall only be enforceable against the plot to which they relate.

The following conditions have been applied to this consent and these conditions must be complied with:

CONDITIONS RELATING TO THE WHOLE SITE

1) Three Year Expiry (HGY Development Management)

   The development hereby authorised must be begun not later than the expiration of 3 years from the date of this permission, failing which the permission shall be of no effect.

   REASON: This condition is imposed by virtue of the provisions of the Planning & Compulsory Purchase Act 2004 and to prevent the accumulation of unimplemented planning permissions.

2) Development in Accordance with Approved Drawings and Documents (LBH Development Management)

   The approved plans comprise drawing nos:

   Masterplan

TH-M_ZZ_001_A_17013_P(00)_P001	P 01
TH-M_ZZ_001_A_17013_P(00)_P003	P 01
TH-M_ZZ_001_A_17013_P(00)_P100	P 01
TH-M_ZZ_001_A_17013_P(00)_P101	P 01

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North Island and Ferry Island

TH-IS_ZZ_001_A_16092_(P00)_P099A P 01
TH-IS_ZZ_001_A_16092_(P00)_P099B P 01
TH-IS_ZZ_001_A_16092_(P00)_P100A P 01
TH-IS_ZZ_001_A_16092_(P00)_P100B P 01
TH-IS_ZZ_001_A_16092_(P00)_P100MA P 01
TH-IS_ZZ_001_A_16092_(P00)_P100MB P 01
TH-IS_ZZ_001_A_16092_(P00)_P101 P 00
TH-IS_ZZ_001_A_16092_(P00)_P102 P 00
TH-IS_ZZ_001_A_16092_(P00)_P103 P 00
TH-IS_ZZ_001_A_16092_(P00)_P107 P 00
TH-IS_ZZ_001_A_16092_(P00)_P108 P 00
TH-IS_ZZ_001_A_16092_(P00)_P109 P 00
TH-IS_ZZ_001_A_16092_(P00)_P112 P 00
TH-IS_ZZ_001_A_16092_(P00)_P113 P 00
TH-IS_ZZ_001_A_16092_(P00)_P114 P 00
TH-IS_ZZ_001_A_16092_(P00)_P118 P 00
TH-IS_ZZ_001_A_16092_(P00)_P119 P 00
TH-IS_ZZ_001_A_16092_(P00)_P120 P 00
TH-IS_ZZ_001_A_16092_(P00)_P136 P 00
TH-IS_ZZ_001_A_16092_(P00)_P137 P 00
TH-IS_ZZ_001_A_16092_(P00)_P210 P 01
TH-IS_ZZ_001_A_16092_(P00)_P211 P 01
TH-IS_ZZ_001_A_16092_(P00)_P212 P 01
TH-IS_ZZ_001_A_16092_(P00)_P213 P 01
TH-IS_ZZ_001_A_16092_(P00)_P220 P 01
TH-IS_ZZ_001_A_16092_(P00)_P221 P 01
TH-IS_ZZ_001_A_16092_(P00)_P230 P 01
TH-IS_ZZ_001_A_16092_(P00)_P231 P 01

Welbourne

TH-WEL-01-001-A-16063-00-100 01
TH-WEL-01-001-A-16063-00-101 01
TH-WEL-01-001-A-16063-00-102 01
TH-WEL-01-001-A-16063-00-103 01
TH-WEL-01-001-A-16063-00-104 01
TH-WEL-01-001-A-16063-00-105 01
TH-WEL-01-001-A-16063-00-106 00
TH-WEL-01-001-A-16063-00-107 00
TH-WEL-01-001-A-16063-00-108 00
TH-WEL-01-001-A-16063-00-109 00
TH-WEL-01-001-A-16063-00-110 00
TH-WEL-01-001-A-16063-00-300 00

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TH-WEL-01-001-A-16063-00-301	01
TH-WEL-01-001-A-16063-00-302	01

Ashley Road East

TH-ARE-01-001-A-2452-00-100	00
TH-ARE-01-001-A-2452-00-100M	00
TH-ARE-01-001-A-2452-00-101	00
TH-ARE-01-001-A-2452-00-102	00
TH-ARE-01-001-A-2452-00-103	00
TH-ARE-01-001-A-2452-00-104	00
TH-ARE-01-001-A-2452-00-105	00
TH-ARE-01-001-A-2452-00-106	00
TH-ARE-01-001-A-2452-00-107	00
TH-ARE-01-001-A-2452-00-108	00
TH-ARE-01-001-A-2452-00-113	00
TH-ARE-01-001-A-2452-00-114	00
TH-ARE-01-001-A-2452-00-120	00
TH-ARE-01-001-A-2452-00-300	00
TH-ARE-01-001-A-2452-00-301	00
TH-ARE-01-001-A-2452-00-302	00
TH-ARE-01-001-A-2452-00-303	00
TH-ARE-01-001-A-2452-00-304	00
TH-ARE-01-001-A-2452-00-305	00

Ashley Road West

TH-ARW-01-001-A-16098-00-101	00
TH-ARW-01-001-A-16098-00-102	00
TH-ARW-01-001-A-16098-00-103	00
TH-ARW-01-001-A-16098-00-301	00
TH-ARW-01-001-A-16098-00-302	00

Pavilion

TH-IS_ZZ_001_A_17040_(00)_P120	P 00
TH-IS_ZZ_001_A_17040_(00)_P200	P 00
TH-IS_ZZ_001_A_17040_(00)_P301	P 00
TH-IS_ZZ_001_A_17040_(00)_P500	P 00

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Landscaping

North Island and Ferry Island

TH-IS-PR-001-LA-TOT494-(90)-3001 01
TH-IS-PR-001-LA-TOT494-(90)-5001 01

Ashley Road

TH-AR-PR-001-LA-288-(90)-104 P00
TH-AR-PR-001-LA-288-(90)-105 P00

Welbourne

TH-WB-PR-001-LA-283-(90)-104 P00
TH-WB-PR-001-LA-283-(90)-105 P00

Demolition

TH-M_ZZ_001_C_040204_(P00)_P710 P01

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The development shall be completed in accordance with the approved plans and documents except where conditions attached to this planning permission or S106 obligations related to this planning permission indicate otherwise or where alternative details have been subsequently approved following an application for a non-material amendment.

REASON: In order to ensure the development is carried out in accordance with the Approved details and in the interests of amenity.

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3) Floorspace Ranges (LBH Development Management)

The following non-residential floorspace ranges are permitted:

Land Use	Minimum Area Permitted (m² GIA)	Maximum Area Permitted (m² GIA)
Retail (Use Class A1 – A4)	Up to 4,306	
Leisure (Use Class D2)	Up to 2,288	
Office (Use Class B1(a))	831	5,137
Health Centre (Use Class D1)	1,643	

REASON: To ensure that the Development is undertaken in accordance with the approved drawings and the assessed Environmental Statement.

4) Tree/Plant Replacement – 5 Years (LBH Development Management)

Any tree or plant on the development which, within a period of five years of first occupation of the approved development 1) has died 2) is removed 3) becomes damaged or 4) becomes diseased, shall be replaced in the next planting season with a similar size and species of tree or plant.

REASON: to protect the amenity of the locality.

5) Wheelchair Accessible Dwellings (LBH Development Management)

At least 10% of all dwellings hereby approved shall be wheelchair accessible or easily adaptable for wheelchair use (Part M4 (3) 'wheelchair user dwellings' of the Building Regulations 2015) in conformity with the submitted Design and Access Statement (July 2018) and Addendum (October 2018), unless otherwise agreed in writing with the Local Planning Authority.

REASON: To ensure inclusive and accessible development

6) Part M4 (2) Accessible and Adaptable Dwellings (LBH Development Management)

90% of residential units within the proposed development shall be designed to Part M4 (2) 'accessible and adaptable dwellings' of the Building Regulations 2015 unless otherwise agreed in writing with the Local Planning Authority.
REASON: To ensure inclusive and accessible development

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7) BREEAM Very Good Certification (LBH Carbon Management)

The non-residential development hereby approved shall achieve a BREEAM "Very Good" outcome (BREEAM New Construction 2018 version). The rating shall be maintained thereafter.

REASON: In the interest of addressing climate change and to secure sustainable development

8) Green/Living Roof – Amenity Access Precluded (LBH Carbon Management)

The Green/Living roofs hereby approved shall not be used for external amenity space. Access shall only be permitted for maintenance, repair or escape in an emergency unless agreed in writing with the Local Planning Authority.
REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

9) Tree Removal In Accordance with Relevant Standards (LBH Arboricultural Officer)

All tree removals on the site shall be in accordance with BS3998:2010 Tree Work – Recommendations unless agreed in writing with the Local Planning Authority.

REASON: to protect the amenity of the locality.

10) New Tree Provision – Industry Best Practice (LBH Arboricultural Officer)

All new trees shall be provided in accordance with the following industry best practice:

- BS 8545:2014 Trees: from nursery to independence in the landscape (Sec 8: Nursery production & procurement, Sec 9: handling & storage and Annex D & E.

All trees to be supplied must be produced by working in accordance with UK plant bio security policies.

REASON: To minimise the introduction of harmful pests and diseases through imported tree stock.

11) Electric Charging Points (LBH Transportation)

The development hereby approved shall provide 20% of the total number of car parking spaces with active electric charging points, with a further 80% passive provision for future conversion.

REASON: To reduce carbon emissions and protect air quality.

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12) Noise Levels – Compliance (LBH Environmental Health – Noise)

All residential premises hereby approved shall be designed in accordance with BS8233:2014 'Guidance on sound insulation and noise reduction for buildings' and meet the following noise levels;

Time	Area	Average Noise level
Daytime Noise 7am – 11pm	**Living rooms & Bedrooms**	**35dB(A)** ($L_{Aeq,16hour}$)
	Dining Room Area	**40dB(A)** ($L_{Aeq,16hour}$)
Night Time Noise 11pm - 7am	**Bedrooms**	**30dB(A)** ($L_{Aeq,8hour}$)

With individual noise events not to exceed 45 dB LAmax (measured with F time weighting) more than 10-15 times in bedrooms between 23:00hrs – 07:00hrs.

REASON: To protect the amenity of occupiers

13) Building Services Plant Noise (LBH Environmental Health – Noise)

Noise arising from the use of the building service plants and associated equipment shall;

1) Not increase the background noise level (LA90 15mins) when measured (LAeq 15mins) 1 metre external from the nearest residential receptor.
2) Not exceed the background noise level (LA90 15mins) when measured (LAeq 15mins) 1 metre external from the nearest commercial receptor.

All plant units shall be installed and maintained throughout the duration of the use in accordance with the above condition.

REASON: to ensure high quality residential development and protect the amenity of the locality

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14) Infiltration of Surface Water Drainage (Environment Agency)

No infiltration of surface water drainage associated with the development is permitted other than with the written consent of the Local Planning Authority. The development shall be carried out in accordance with the approved details.

REASON: To ensure that the development is not contributing to, put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution caused by mobilised contaminants in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

15) Intermittent and Exceptional Use of Diesel Generators (LBH Environmental Health)

Generators shall be used solely on brief intermittent and exceptional occasions when required in response to an emergency and for testing as necessary to meet that purpose and shall not be used at any other time. At all times the generators shall be operated to minimise noise impacts and emissions of air pollutants and a log of operational hours shall be maintained and be available for inspection by the Local Planning Authority.

REASON: to protect air quality and the amenity of the locality.

16) Back-Up Diesel Generators – Details of EU Stage V Emission Standards Compliance (LBH Environmental Health)

Prior to the installation of back up diesel generators on the application site, details of generator compliance with EU Stage V Emission Standards for Generator Set Engines shall be provided in writing to and for approval by the Local Planning Authority. Installation shall be in compliance with the approved details and maintained thereafter.

REASON: to protect air quality and the amenity of the locality.

17) Diesel Generator Fuel - Ultra Low Sulphur Diesel (ULSD) - (LBH Environmental Health)

Any diesel generators on the application site shall run on ultra low sulphur diesel (ULSD) meeting the fuel specification within EN590:2004.

REASON: to protect air quality and the amenity of the locality.

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18) Flue Height Termination Above Highest Roof - (LBH Environmental Health)

All combustion flues on the application site must terminate at least 1 m above the highest roof in the relevant plot, unless otherwise agreed in writing by the Local Planning Authority

REASON: to protect air quality and the amenity of the locality.

19) Plant and Machinery – EU Air Quality Compliance (LBH Environmental Health)

All plant and machinery to be used at the demolition and construction phases of development shall meet Stage IIIA of EU Directive 97/68/ EC for both NOx and PM.

REASON: To protect the amenity of the locality.

20) Hard and Soft Landscaping (LBH Development Management)

Part A

Full details of both hard and soft landscape works within the publicly accessible areas of the Site shall be submitted in writing to and approved by the Local Planning Authority prior to installation of such works. The hard and soft landscaping within the publicly accessible areas of the Site shall be constructed in accordance with the approved details and shall be delivered in line with the timeframes set out in the Public Access Areas Phasing Details as defined in the s106 Agreement relating to, and of even date with, this permission.

Part B

Full details of both hard and soft landscape works within each plot's building(s) demise shall be submitted in writing to and approved by the Local Planning Authority prior to installation of such works on the relevant plot. The hard and soft landscaping shall be constructed in accordance with the approved details. The soft landscaping details approved under this condition 20B shall be implemented in the first planting and seeding season following the residential occupation of the relevant plot. The hard landscaping details approved under this condition 20B shall be implemented within 3 months of the residential occupation of the relevant plot.
Relevant details from the following apply to both Parts A and B above.

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Details of hard landscaping works shall include:

- Hard surfacing materials;
- Street furniture, short stay cycle parking in accordance with the London Cycle Design Standards (LCDS, October 2016), refuse or other storage units and signage; and
- Details of any hard landscaping mitigation measures required to mitigate potential wind tunnel effects identified within the ES (July 2018) and ES Addendum (October 2018).

Details of soft landscape works shall include:

- A full schedule of species of new trees and shrubs proposed to be planted;
- Written specifications (including cultivation and other operations) associated with plant establishment;
- Schedules of plants, noting species, plant sizes and proposed numbers/densities where appropriate;
- Details of any proposed residential podium space;
- Details of any soft landscaping mitigation measures required to mitigate potential wind tunnel effects identified within the ES (July 2018) and ES Addendum (October 2018); and
- An implementation programme and management plan.

REASON: To protect the amenity of the locality.

21) Public Lighting Strategy (LBH Development Management)

Details of a Public Realm Lighting Strategy shall be submitted in writing to and approved by the Local Planning Authority prior to installation of any lighting. The Strategy shall be in broad conformity with Vol 8 – Lighting Strategy of the Design and Access Statement (July 2018). The strategy shall be implemented as approved and maintained thereafter and shall be delivered in line with the timescales set out in the Public Access Areas Phasing Details as defined in the s106 Agreement relating to, and of even date with, this permission.

REASON: to ensure a high quality public realm

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22) Tree Replacement in Accordance with Approved Documents (LBH Development Management)

Unless otherwise agreed in writing with the Local Planning Authority, the replacement of trees hereby approved shall be in conformity with the approved documents Arboricultural Impact Assessment and Method Statement (July 2018) and Addendum (October 2018) prepared by RPS.

REASON: to protect the amenity of the locality

A. CONDITIONS RELATING TO NORTH ISLAND (PLOT A)

A1) Materials Samples (LBH Development Management)
Prior to the installation of materials on the external surfaces on the building(s) within Plot A, samples of materials to be used for the external surfaces of the building(s) hereby approved within Plot A, shall be submitted in writing to and for approval by the Local Planning Authority. Samples shall include type and shade of cladding, window frames and balcony frames, sample panels or brick types and a roofing material sample combined with a schedule of the exact product references. The development shall be constructed of the approved materials and maintained thereafter.

REASON: In order for the Local Planning Authority to retain control over the exact materials to be used for the proposed development and to assess the suitability of the samples submitted in the interests of visual amenity.

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A2) Waste Management Plan (LBH Waste Management)

Prior to the residential occupation of Plot A, a Residential Waste Management Plan in respect of Plot A shall be submitted in writing to and for approval by the Local Planning Authority.

Prior to the occupation of the Plot A non-residential floorspace, a Commercial Waste Management Plan in respect of Plot A shall be submitted in writing to and for approval by the Local Planning Authority.

The plans shall demonstrate as necessary:

- Any distances between waste storage areas and collection vehicles further than 10 metres are mitigated by appropriate management measures.
- Installed dropped kerbs relevant to servicing access have gradients no greater than 1:20
- Suitable pest control of waste storage areas.
- Separate commercial and residential waste storage and disposal
- In respect of the non-residential units, arrangements for a scheduled waste collection with a Commercial Waste Contractor
- A cleansing schedule and measures to ensure waste is contained at all times.

The development within Plot A shall be implemented in accordance with the approved Plan and maintained thereafter.

REASON: To protect the amenity of the locality

A3) Drainage – Attenuation Details (LBH Local Lead Flood Authority)

Prior to the commencement of the Plot A development other than demolition, below ground and building core works, full details of the drainage attenuation in respect of Plot A shall be submitted in writing to and for approval by the local Planning Authority.

Attenuation measures shall demonstrate compliance with the relevant London Plan (2016) Standards, in relation to greenfield runoff rate, and the approved details shall then be implemented as approved and maintained thereafter.

REASON: to mitigate flood risk.

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A4) Drainage - Design Implementation, Maintenance Management (LBH Local Lead Flood Authority)

Prior to commencement of the Plot A development other than demolition, below ground and building core works, details of design implementation, maintenance and management of the sustainable drainage scheme in respect of Plot A shall be submitted in writing to and for approval by the Local Planning Authority, those details shall include:-

i) Information about the design storm periods and intensity, discharge rates for both pre and post development, means of access for maintenance, methods used to control surface water discharge from the Plot.
ii) Any works required off site to ensure adequate discharge of surface water without causing flooding.
iii) Floodwater exceedance routes, both on and off site.
iv) Timetable for implementation.
v) A detailed management maintenance plan for the lifetime of the Plot A development, which shall include arrangements for adoption by an appropriate public body or statutory undertaker, management by Residents management company or other arrangements to secure the operation of the drainage scheme throughout the lifetime of the Plot A development.

The scheme shall be implemented, retained, managed and maintained within Plot A in accordance with the approved details.

REASON: To prevent increased risk of flooding to improve water quality and amenity to ensure future maintenance of the surface water drainage system.

A5) BREAAM – Post Occupation Certificate (LBH Carbon Management)

Six calendar months after the first non-residential occupation of the Plot, a BREEAM Post Construction Certificate in respect of the non-residential space within Plot A shall be submitted to the Local Planning Authority. The Certificate shall be issued by the Building Research Establishment (or another independent certification body). The development within Plot A shall maintain the rating in the approved Certificate thereafter unless agreed in writing with the Local Planning Authority.

REASON: In the interest of addressing climate change and to secure sustainable development

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A6) Overheating and Model Report (LBH Carbon Management)

Prior to above ground works within Plot A (excluding demolition and works to construct the building core), an Overheating Model and Report in respect of Plot A shall be submitted in writing to and for approval by the Local Planning Authority. The submission shall assess the overheating risk (using future weather temperature projections), and demonstrate how the risks have been mitigated and removed through design solutions. This assessment will use TM59 (for domestic) or TM52 (for non-domestic). Both models shall be run using the London Weather File TM49.

The submission shall include details of the design measures incorporated within the scheme within Plot A (including details of the feasibility of using external solar shading and passive cooling and ventilation) to ensure adaptation to higher temperatures are addressed, and the units do not overheat. The submission shall include the following:

A. Full listing (based on unit number relating to planning drawings) of units modelled and the overheating risk before measures are installed;
B. The measures installed to reduce overheating risk:

   i. the standard and the impact of the solar control glazing;
   ii. that all heating pipework is appropriately insulated
   iii. that passive cooling and ventilation features have been included
   iv. highlight the mitigation strategies to overcome any overheating risk
   v. that there is space for pipe work or localised building services and that this is designed in to the building to allow the retrofitting of centralised or localised cooling and ventilation equipment if needed.

The submission shall preclude the use of air conditioning unless exceptional justification is given for design based upon current weather projection (CIBSE DSY 1). The development within Plot A shall be constructed in accordance with the approved submission.

REASON: In the interest of adapting to climate change and to secure sustainable development.

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A7) Biodiversity Plan (LBH Carbon Management)

Prior to the installation of the measures listed in items i to v below within Plot A, details of a Biodiversity Plan in respect of the development within Plot A shall be submitted in writing to and for approval by the Local Planning Authority. The Plan shall detail:

i. Details on the number, and location of the bird brick boxes (or other) - including orientation and links to habitats that would be needed to support the identified bird species;
ii. Details on the bird brick box (or other) design and for what bird species would they serve;
iii. The lighting measures and ongoing management to reduce the impact on recorded bat populations;
iv. The number, and location of the bat brick boxes; and
v. The number, and location of the insect hotels.

The development within Plot A shall be constructed in accordance with the approved Plan and the approved measures incorporated prior to the occupation of the development within Plot A. The approved biodiversity infrastructure should where possible preclude impacts by amenity uses and access should be permitted only for maintenance, repair or escape in an emergency.
REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

A8) Green/living Roof Plan (LBH Carbon Management)

Prior to installation of green/living roofs, a Green/Living Roof Plan in respect of the development within Plot A shall be submitted in writing to and for approval by the Local Planning Authority. The Plan shall include:

- A roof(s) plan identifying where the living roofs will be located;
- Confirmation of the substrates depth ranges;
- Details on the diversity of substrate depths across the roof to provide contours of substrate;
- Details on the diversity of substrate types and sizes;
- Details on bare areas of substrate to allow for self colonisation of local windblown seeds and invertebrates;
- Details on the range of native species of wildflowers and herbs planted to benefit native wildlife precluding a overreliance on sedum;
- Details of the location of log piles / flat stones for invertebrates; and
- Schedule of ongoing maintenance and management

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The measures should be incorporated prior to the occupation of the development within Plot A. The development within Plot A shall be carried out in accordance with the approved Plan and maintained thereafter.

REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

A9) Boiler Details (LBH Environmental Health/Carbon Management)

Prior to above ground works within Plot A (excluding demolition and works to construct the building core), details of the boiler facilities and associated infrastructure within the Plot, shall be submitted to and approved in writing by the Local Planning Authority. The details shall include:

a) location of the energy centre;
b) specification of equipment and pipework;
c) details of all the flue arrangements and chimney heights calculations, diameters and locations;
d) confirmation that the boilers to be provided for space heating and domestic hot water shall have dry NOx emissions not exceeding 40 mg/kWh;
e) confirmation that the site wide heating and hot water network has been designed and shall be constructed following the CIBSE / ADE Heat Networks Code of Practice
f) operation/management strategy;
g) the method of how the facility and infrastructure shall be designed to allow for the future connection to any neighbouring heating network (including the proposed connectivity location, space for extra equipment, punch points and large enough route of the link); and
h) the route from the Energy Centre to the red line boundary with installed pipe specification to serve all heat loads.

The development within Plot A shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To protect air quality, ensure future district energy connection and protect the amenity of the locality.

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A10) Accessible Parking Demarcated (LBH Transportation)

Prior to the occupation of the Plot A development, all accessible car parking spaces within that Plot shall be marked as such and retained permanently.

REASON: In order to ensure that a reasonable number of parking spaces are located conveniently for use by people with disabilities.

A11) Cycle Parking (LBH Transportation)

Prior to the occupation of the Plot A development, full details of the long stay cycle parking (including the type, dimensions and method of security and access), in line with the London Cycle Design Standards (LCDS, October 2016) within that Plot shall be submitted in writing to and approved by the Local Planning Authority. Cycle parking within the Plot shall be installed in accordance with the approved details.

REASON: To promote sustainable transport.

A12) Service and Delivery Plan (LBH Transportation)

Part A

Prior to the residential occupation of the Plot A development, a full Residential Service and Delivery Plan (SDP) in respect of the development within Plot A shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Plot A shall be undertaken in accordance with the approved plan.

Part B

Prior to the occupation of the non-residential floorspace within Plot A, a full Service and Delivery Plan (SDP) for the non-residential uses within Plot A shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Plot A shall be undertaken in accordance with the approved plan.

REASON: To reduce traffic and congestion on the transportation and highways network.

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A13) Noise Level Testing Details (LBH Environmental Health – Noise)

Prior to the occupation of the Plot A development, testing details (the scope of which shall be agreed with the Local Planning Authority prior to submission) confirming the noise levels cited in Site Wide condition 12 above have been met shall be submitted in writing to and for approval by the Local Planning Authority. The approved noise level shall be maintained within Plot A thereafter.

REASON: To protect the amenity of occupiers.

A14) Sound Insulation Between Residential and Commercial Properties (LBH Environmental Health – Noise)

Prior to the commencement of the building works for the fit-out of the commercial units within Plot A, details of a Sound Insulation Scheme to be installed between the commercial premises and residential premises within Plot A shall be submitted in writing to and for approval by the Local Planning Authority. The scheme shall be submitted following consultation with the Council's Environmental Health Officer (Noise). The scheme shall be installed as approved prior to any commercial occupation of Plot A and shall be maintained thereafter.
REASON: to protect the amenity of the locality.

A15) Secure by Design Accreditation (Metropolitan Police)

Part A

Prior to carrying out above ground works within Plot A (excluding demolition and works to construct the building core) details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that the Plot (and building(s) contained therein) has incorporated the principles and practices of Secured by Design where these can be practically achieved. Where the principles cannot be achieved, then justification for this will be required. The development within Plot A shall be implemented in accordance with the approved details.

Part B

Prior to first occupation of each building or part of a building or use within Plot A, details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that such Plot (and building(s) contained therein) has delivered the principles and practices of Secured by Design, and as agreed by the Local Planning Authority in the discharge of Part A.
REASON: To ensure safe and secure development and reduce crime.

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A16) Site Levels (LBH Development Management)

No development shall proceed within Plot A (excluding above ground demolition) until details of all existing and proposed levels on the Plot in relation to the adjoining properties have been submitted to and approved by the Local Planning Authority. The Plot A development shall be built in accordance with the approved details.

REASON: In order to ensure that any works in conjunction with the permission hereby granted respects the height of adjacent properties through suitable levels on the site.

A17) Open Space Management & Maintenance Plan (LBH Development Management)

Prior to the occupation of the Plot A development, an Open Space Management & Maintenance Plan in respect of the development within Plot A shall be submitted to and approved in writing by the Local Planning Authority The Plan shall include details of the following:

i) Long-term management and maintenance responsibilities for all private, communal play spaces/amenity spaces and all publicly accessible open spaces
ii) Soft landscaping management and maintenance arrangements to ensure positive contribution to biodiversity

Spaces within Plot A shall be managed and maintained in accordance with the approved Plan and maintained thereafter.

REASON: to ensure high quality open space

A18) Child Playspace Strategy (LBH Development Management)

Prior to the residential occupation of Plot A, a Child Play Space Strategy in respect of the development within Plot A shall be submitted in writing to and for approval by the Local Planning Authority. The Strategy shall provide detail of child play spaces in accordance with the London Plan (2016) and the London Plan SPG Play and Informal Recreation (2012). The development within Plot A shall be implemented in accordance with the Strategy and maintained thereafter.

REASON: to ensure high quality development

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A19) Monitoring and Maintenance Plan – Contamination (Environment Agency)

The Plot A development hereby permitted may not commence other than for investigative works until a monitoring and maintenance plan in respect of contamination within Plot A, including a timetable of monitoring and submission of reports to the Local Planning Authority, has been submitted to, and approved in writing by, the Local Planning Authority. Reports as specified in the approved plan, including details of any necessary contingency action arising from the monitoring, shall be submitted to, and approved in writing by, the Local Planning Authority.

REASON: To ensure that the site does not pose any further risk to human health or the water environment by managing any ongoing contamination issues and completing all necessary long-term remediation measures. This is in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

A20) Contamination Not Previously Identified (Environment Agency)

If during development, contamination not previously identified is found to be present at Plot A then no further development in respect of that Plot (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved within Plot A.

REASONS: To ensure that the development is not contributing to, put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution from previously unidentified contamination sources at the development site in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

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A21) Written Consent for Piling or Other Intrusive Ground Works (Environment Agency)

Piling or other intrusive ground works (investigation boreholes, tunnel shafts, ground source heating and cooling systems) using penetrative methods which breach the base of the London Clay or where the London Clay is absent shall not be carried out other than with the written consent of the local planning authority. The development within Plot A shall be carried out in accordance with the approved details.

REASON: To ensure that the proposed piling activities through potentially contaminated land is not contributing to, put at unacceptable risk from, or adversely affected by unacceptable levels of water pollution caused by mobilised contaminants in line with paragraph 170 of the National Planning Policy Framework and the Environment Agency's approach to groundwater protection. To prevent deterioration of groundwater within the principal chalk aquifer.

A22) Method of Piling (LBH Environmental Health)

(1) No piling; or (2) other intrusive ground works which breach the base of the London Clay or occur in areas where the London Clay is absent within Plot A shall take place until a Piling Impact Study has been undertaken in respect of Plot A. The Piling Impact Study shall include the method of piling foundations and shall be submitted to and approved in writing by the Local Planning Authority. Piling or any other foundation design using penetrative methods shall not be permitted within Plot A except for those parts of Plot A where it has been demonstrated that there is no resultant unacceptable risk to ground water."

REASON: To prevent the contamination of the underlying groundwater aquifer

A23) Written Scheme of Investigation (WSI) – Historic England (GLAAS)

No demolition or development (apart from demolition to slab level) shall take place within Plot A until a stage 1 written scheme of investigation (WSI) in respect of Plot A has been submitted to and approved by the local planning authority in writing. For land that is included within the WSI, no demolition or development (apart from demolition to slab level) shall take place within Plot A other than in accordance with the agreed WSI, and the programme and methodology of site evaluation and the nomination of a competent person(s) or organisation to undertake the agreed works.

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If heritage assets of archaeological interest are identified by stage 1 then for those parts of the site which have archaeological interest a stage 2 WSI shall be submitted to and approved by the local planning authority in writing. For land that is included within the stage 2 WSI, no demolition/development (apart from demolition to slab level) shall take place within Plot A other than in accordance with the agreed stage 2 WSI which shall include:

A. The statement of significance and research objectives, the programme and methodology of site investigation and recording and the nomination of a competent person(s) or organisation to undertake the agreed works

B. The programme for post-investigation assessment and subsequent analysis, publication & dissemination and deposition of resulting material. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme set out in the stage 2 WSI.

REASON: To protect the Historic Environment

A24) Contaminated Land – Part 1 (LBH Environmental Health)

Prior to the commencement of the development on Plot A (other than for investigative work):

a) Using the information obtained from the previous assessments, an additional site investigation, sampling and analysis shall be undertaken at the Plot as appropriate. The investigation must be comprehensive enough to enable:-

i) A risk assessment to be undertaken,
ii) Refinement of the Conceptual Model, and
ii) The development of a Method Statement detailing the remediation requirements.
The risk assessment and refined Conceptual Model shall be submitted, along with the site investigation report, to the Local Planning Authority.

b) If the risk assessment and refined Conceptual Model indicate any risk of harm, a Method Statement detailing the remediation requirements in respect of the Plot, using the information obtained from the site investigation, and also detailing any post remedial monitoring shall be submitted to, and approved in writing by, the Local Planning Authority prior to that remediation being carried out on the Plot.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

A25) Contaminated Land – Part 2 (LBH Environmental Health)

Where the contaminated land condition above demonstrates that remediation of contamination on the Plot is required, completion of the remediation detailed in the Method Statement shall be carried out and a report that provides verification that the required works have been carried out, shall be submitted to, and approved in writing by the Local Planning Authority before the development is occupied within Plot A.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

A26) Development Near Subsurface Potable Water Infrastructure (Thames Water)

No construction shall take place within 5m of the water main unless otherwise agreed in writing with the Local Planning Authority in consultation with Thames Water. Information detailing how the developer intends to divert the asset / align the Plot A development, so as to prevent the potential for damage to subsurface potable water infrastructure, must be submitted to and approved in writing by the local planning authority in consultation with Thames Water. Any construction must be undertaken in accordance with the terms of the approved information. Unrestricted access must be available at all times for the maintenance and repair of the asset during and after the construction works.
REASON: The proposed works will be in close proximity to underground strategic water main, utility infrastructure. The works have the potential to impact on local underground water utility infrastructure.

A27) Central Satellite Dish/Receiving System (LBH Development Management)
Prior to the residential occupation of the Plot A development, details of a Central Satellite Dish/Receiving System in respect of Plot A shall be submitted in writing to and for approval by the Local Planning Authority. The System shall be implemented in accordance with approved details and maintained thereafter.

REASON: To protect the amenity of the locality.

A28) Satellite Dish or Television Antenna (LBH Development Management)

The placement of any satellite dish or television antenna on any external surface of any building in the Plot is not permitted, excepting the approved central dish/receiving system noted in the condition above, unless agreed in writing with the Local Planning Authority.

REASON: To protect the amenity of the locality.

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A29) Demolition/Construction Environmental Management Plans (LBH Development Management)

Part A

Demolition works shall not commence within Plot A until a Demolition Environmental Management Plan (DEMP) in respect of Plot A has been submitted to and approved in writing by the local planning authority.

Part B

Development shall not commence within Plot A (other than demolition) until a Construction Environmental Management Plan (CEMP) in respect of Plot A has been submitted to and approved in writing by the local planning authority.

The following applies to both Parts A and B above:

a) The DEMP/CEMP shall include a Construction Logistics Plan (CLP) and Air Quality and Dust Management Plan (AQDMP) in respect of Plot A.

b) The DEMP/CEMP shall provide details of how demolition/construction works in respect of Plot A are to be undertaken respectively and shall include:
   i. A construction method statement which identifies the stages and details how works will be undertaken;
   ii. Details of working hours, which unless otherwise agreed with the Local Planning Authority shall be limited to 08.00 to 18.00 Monday to Friday and 08.00 to 13.00 on Saturdays;
   iii. Details of plant and machinery to be used during demolition/construction works;
   iv. Details of an Unexploded Ordnance Survey;
   v. Details of the waste management strategy;
   vi. Details of community engagement arrangements;
   vii. Details of any acoustic hoarding;
   viii. A temporary drainage strategy and performance specification to control surface water runoff and Pollution Prevention Plan (in accordance with Environment Agency guidance);
   ix. Details of external lighting; and,
   x. Details of any other standard environmental management and control measures to be implemented.

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c) The CLP will be in accordance with Transport for London's Construction Logistics Plan Guidance (July 2017) and shall provide details on:

i. Monitoring and joint working arrangements, where appropriate;
ii. Site access and car parking arrangements;
iii. Delivery booking systems;
iv. Agreed routes to/from the Plot;
v. Timing of deliveries to and removals from the Plot (to avoid peak times, as agreed with Highways Authority, 07.00 to 9.00 and 16.00 to 18.00, where possible); and
vi. Travel plans for staff/personnel involved in demolition/construction works to detail the measures to encourage sustainable travel to the Plot during the demolition/construction phase; and
vii. Joint arrangements with neighbouring developers for staff parking, Lorry Parking and consolidation of facilities such as concrete batching.

d) The AQDMP will be in accordance with the Greater London Authority SPG Dust and Emissions Control (2014) and shall include:

i. Mitigation measures to manage and minimise demolition/construction dust emissions during works;
ii. Details confirming the Plot has been registered at http://nrmm.london;
iii. Evidence of Non-Road Mobile Machinery (NRMM) and plant registration shall be available on site in the event of Local Authority Inspection;
iv. An inventory of NRMM currently on site (machinery should be regularly serviced and service logs kept on site, which includes proof of emission limits for equipment for inspection);
v. A Dust Risk Assessment for the works; and
vi. Lorry Parking, in joint arrangement where appropriate.

The development on Plot A shall be carried out in accordance with the approved details.

Additionally, the site or Contractor Company must be registered with the Considerate Constructors Scheme. Proof of registration must be sent to the Local Planning Authority prior to any works being carried out.

REASON: To safeguard residential amenity, reduce congestion and mitigate obstruction to the flow of traffic, protect air quality and the amenity of the locality.

A30) Details of Roof Top PV Panels (LBH Development Management)

Prior to the occupation of Plot A for residential purposes, details of the layout and specification of the PV solar panel installation in respect of Plot A shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot A shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure sustainable development and mitigate the impacts of climate change.

A31) Legal Agreement – Interested Parties (LBH Development Management)

Unless the local planning authority shall have first agreed in writing that it is not necessary to bind the particular interest or interests in question, no works shall be carried out under this permission on that land shown shaded green on plan TOT-PLAN-PLAP-06-A-P01 Rev P01 unless and until all legal and equitable interests in that land have been bound by the provisions of the section 106 agreement of even date with this permission.
REASON: to secure a legal agreement with all those with an interest in the land.

A32) Installation of Roof Top Structures (LBH Development Management)
Prior to the installation of any access ladders or building cleaning equipment at the roof level of Plot A, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot A shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

A33) Opaque Glazing to Non-Residential Units (LBH Development Management)

Prior to the installation of any opaque glazing on the ground floor non-residential units of Plot A, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot A shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

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A34) Cooling Demand (Great London Authority Energy)

Prior to the occupation of the non-residential floorspace within Plot A, details of measures to be undertaken to minimise the non-domestic cooling demand shall be submitted in writing to and for approval by the Local Planning Authority. The measures shall be incorporated in accordance with the approved details.

REASON: In the interest of adapting to climate change and to secure sustainable development.

A35) Overheating (Great London Authority Energy)

Prior to the residential occupation of the Plot A development, a Building User Guide for new residential occupants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide will advise residents how to operate their property during a heatwave, setting out a cooling hierarchy in accordance with London Plan (2016) Policy 5.9 with passive measures being considered ahead of cooling systems. The Building User Guide will be issued to residential occupants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

A36) Heat Network (Great London Authority Energy)

Prior to the occupation of the non-residential floorspace within Plot A, a Building User Guide for new non-residential tenants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide shall explain that valved connections have been made available to each tenant, for the purpose of their primary heating and hot water generation. The Building User Guide will be issued to non-residential tenants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

A37) CO2 (Great London Authority Energy)

Prior to the occupation of each non-residential unit within Plot A, details demonstrating that a Seasonal Energy Efficiency Ratio (SEER) of 7.0 can be achieved shall be submitted in writing to and for approval by the Local Planning Authority. The development shall be occupied in accordance with the approved details.

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REASON: In the interest of adapting to climate change and to secure sustainable development.

B. CONDITIONS RELATING TO FERRY ISLAND (PLOT B)

B1) Materials Samples (LBH Development Management)

Part A – Building 1

Prior to the installation of materials on the external surfaces on Building 1 within Plot B, samples of materials to be used for the external surfaces of Building 1 hereby approved, shall be submitted in writing to and for approval by the Local Planning Authority. Samples shall include type and shade of cladding, window frames and balcony frames, sample panels or brick types and a roofing material sample combined with a schedule of the exact product references. The development shall be constructed of the approved materials and maintained thereafter.

Part B – Building 2

Prior to the installation of materials on the external surfaces on the Building 2 within Plot B, samples of materials to be used for the external surfaces of Building 2 hereby approved, shall be submitted in writing to and for approval by the Local Planning Authority. Samples shall include type and shade of cladding, window frames and balcony frames, sample panels or brick types and a roofing material sample combined with a schedule of the exact product references. The development shall be constructed of the approved materials and maintained thereafter.
REASON: In order for the Local Planning Authority to retain control over the exact materials to be used for the proposed development and to assess the suitability of the samples submitted in the interests of visual amenity.

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B2) Waste Management Plan (LBH Waste Management)

Prior to the residential occupation of Plot B, a Residential Waste Management Plan in respect of Plot B shall be submitted in writing to and for approval by the Local Planning Authority.

Prior to the occupation of the Plot B non-residential floorspace, a Commercial Waste Management Plan in respect of Plot B shall be submitted in writing to and for approval by the Local Planning Authority.

The plans shall demonstrate as necessary:

- Any distances between waste storage areas and collection vehicles further than 10 metres are mitigated by appropriate management measures.
- Installed dropped kerbs relevant to servicing access have gradients no greater than 1:20
- Suitable pest control of waste storage areas.
- Separate commercial and residential waste storage and disposal
- In respect of the non-residential units, arrangements for a scheduled waste collection with a Commercial Waste Contractor
- A cleansing schedule and measures to ensure waste is contained at all times.

The development within Plot B shall be implemented in accordance with the approved Plan and maintained thereafter.
REASON: To protect the amenity of the locality

B3) Drainage – Attenuation Details (LBH Local Lead Flood Authority)

Prior to the commencement of the Plot B development other than demolition, below ground and building core works, full details of the drainage attenuation in respect of Plot B shall be submitted in writing to and for approval by the local Planning Authority.

Attenuation measures shall demonstrate compliance with the relevant London Plan (2016) Standards, in relation to greenfield runoff rate, and the approved details shall then be implemented as approved and maintained thereafter.

REASON: to mitigate flood risk.

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B4) Drainage - Design Implementation, Maintenance Management (LBH Local Lead Flood Authority)

Prior to commencement of the Plot B development other than demolition, below ground and building core works, details of design implementation, maintenance and management of the sustainable drainage scheme in respect of Plot B shall be submitted in writing to and for approval by the Local Planning Authority, those details shall include:-

i) Information about the design storm periods and intensity, discharge rates for both pre and post development, means of access for maintenance, methods used to control surface water discharge from the Plot.
ii) Any works required off site to ensure adequate discharge of surface water without causing flooding.
iii) Floodwater exceedance routes, both on and off site.
iv) Timetable for implementation.
v) A detailed management maintenance plan for the lifetime of the Plot B development, which shall include arrangements for adoption by an appropriate public body or statutory undertaker, management by Residents management company or other arrangements to secure the operation of the drainage scheme throughout the lifetime of the Plot B development.

The scheme shall be implemented, retained, managed and maintained within Plot B in accordance with the approved details.
REASON: To prevent increased risk of flooding to improve water quality and amenity to ensure future maintenance of the surface water drainage system.

B5) BREAAM – Post Occupation Certificate (LBH Carbon Management)

Part A – Building 1

Six calendar months after the first non-residential occupation of Building 1 on Plot B, a BREEAM Post Construction Certificate in respect of the non-residential space within Building 1 on Plot B shall be submitted to the Local Planning Authority. The Certificate shall be issued by the Building Research Establishment (or another independent certification body). The development within Building 1 on Plot B shall maintain the rating in the approved Certificate thereafter unless agreed in writing with the Local Planning Authority.

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Part B – Building 2

Six calendar months after the first non-residential occupation of Building 2 on Plot B, a BREEAM Post Construction Certificate in respect of the non-residential space within Building 2 on Plot B shall be submitted to the Local Planning Authority. The Certificate shall be issued by the Building Research Establishment (or another independent certification body). The development within Building 2 on Plot B shall maintain the rating in the approved Certificate thereafter unless agreed in writing with the Local Planning Authority.

REASON: In the interest of addressing climate change and to secure sustainable development

B6) Overheating and Model Report (LBH Carbon Management)

Part A – Building 1

Prior to above ground works of Building 1 on Plot B (excluding demolition and works to construct the building core), an Overheating Model and Report in respect of Building 1 on Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The submission shall assess the overheating risk (using future weather temperature projections), and demonstrate how the risks have been mitigated and removed through design solutions. This assessment will use TM59 (for domestic) or TM52 (for non-domestic). Both models shall be run using the London Weather File TM49.

The submission shall include details of the design measures incorporated within Building 1 on Plot B (including details of the feasibility of using external solar shading and passive cooling and ventilation) to ensure adaptation to higher temperatures are addressed, and the units do not overheat.

Part B – Building 2

Prior to above ground works of Building 2 on Plot B (excluding demolition and works to construct the building core), an Overheating Model and Report in respect of Building 2 on Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The submission shall assess the overheating risk (using future weather temperature projections), and demonstrate how the risks have been mitigated and removed through design solutions. This assessment will use TM59 (for domestic) or TM52 (for non-domestic). Both models shall be run using the London Weather File TM49.
The submission shall include details of the design measures incorporated within Building 2 on Plot B (including details of the feasibility of using external solar shading and passive cooling and ventilation) to ensure adaptation to higher temperatures are addressed, and the units do not overheat.

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The Part A and Part B submissions shall include the following:

A. Full listing (based on unit number relating to planning drawings) of units modelled and the overheating risk before measures are installed;
B. The measures installed to reduce overheating risk:

i. the standard and the impact of the solar control glazing;
ii. that all heating pipework is appropriately insulated
iii. that passive cooling and ventilation features have been included
iv. highlight the mitigation strategies to overcome any overheating risk
v. that there is space for pipe work or localised building services and that this is designed in to the building to allow the retrofitting of centralised or localised cooling and ventilation equipment if needed.

The submission shall preclude the use of air conditioning unless exceptional justification is given for design based upon current weather projection (CIBSE DSY 1). The development within Plot B shall be constructed in accordance with the approved submission.

REASON: In the interest of adapting to climate change and to secure sustainable development.

B7) Biodiversity Plan (LBH Carbon Management)

Part A – Building 1

Prior to the installation of the measures listed in items i to v below for Building 1 of Plot B, details of a Biodiversity Plan in respect of the development for Building 1 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority.

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Part B – Building 2

Prior to the installation of the measures listed in items i to v below for Building 2 of Plot B, details of a Biodiversity Plan in respect of the development for Building 2 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority.
The Plans submitted for Part A and Part B shall detail:

i. Details on the number, and location of the bird brick boxes (or other) - including orientation and links to habitats that would be needed to support the identified bird species;
ii. Details on the bird brick box (or other) design and for what bird species would they serve;
iii. The lighting measures and ongoing management to reduce the impact on recorded bat populations;
iv. The number, and location of the bat brick boxes; and
v. The number, and location of the insect hotels.

The development within Plot B shall be constructed in accordance with the approved Plans.

The approved measures for Building 1 of Plot B shall be incorporated prior to the occupation of Building 1 of Plot B. The approved measures for Building 2 of Plot B shall be incorporated prior to the occupation of Building 2 of Plot B.
The approved biodiversity infrastructure should where possible preclude impacts by amenity uses and access should be permitted only for maintenance, repair or escape in an emergency.

REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

B8) Green/living Roof Plan (LBH Carbon Management)

Part A – Building 1

Prior to installation of green/living roofs on Building 1 of Plot B, a Green/Living Roof Plan in respect of Building 1 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority.

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Part B – Building 2

Prior to installation of green/living roofs on Building 2 of Plot B, a Green/Living Roof Plan in respect of Building 2 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority.

The Plans submitted for Part A and Part B shall include:

- A roof(s) plan identifying where the living roofs will be located;
- Confirmation of the substrates depth ranges;
- Details on the diversity of substrate depths across the roof to provide contours of substrate;
- Details on the diversity of substrate types and sizes;
- Details on bare areas of substrate to allow for self colonisation of local windblown seeds and invertebrates;
- Details on the range of native species of wildflowers and herbs planted to benefit native wildlife precluding a overreliance on sedum;
- Details of the location of log piles / flat stones for invertebrates; and
- Schedule of ongoing maintenance and management

The approved measures for Building 1 of Plot B shall be incorporated prior to the occupation of Building 1 of Plot B. The approved measures for Building 2 of Plot B shall be incorporated prior to the occupation of Building 2 of Plot B
The development within Plot B shall be carried out in accordance with the approved Plans and maintained thereafter.

REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

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B9) Boiler Details (LBH Environmental Health/Carbon Management)

Prior to above ground works within Plot B (excluding demolition and works to construct the building cores), details of the boiler facilities and associated infrastructure within the Plot, shall be submitted to and approved in writing by the Local Planning Authority. The details shall include:

a) location of the energy centre;
b) specification of equipment and pipework;
c) details of all the flue arrangements and chimney heights calculations, diameters and locations;
d) confirmation that the boilers to be provided for space heating and domestic hot water shall have dry NOx emissions not exceeding 40 mg/kWh;
e) confirmation that the site wide heating and hot water network has been designed and shall be constructed following the CIBSE / ADE Heat Networks Code of Practice
f) operation/management strategy;
g) the method of how the facility and infrastructure shall be designed to allow for the future connection to any neighbouring heating network (including the proposed connectivity location, space for extra equipment, punch points and large enough route of the link); and
h) the route from the Energy Centre to the red line boundary with installed pipe specification to serve all heat loads.

The development within Plot B shall be constructed in accordance with the approved details and maintained thereafter.
REASON: To protect air quality, ensure future district energy connection and protect the amenity of the locality.

B10) Accessible Parking Demarcated (LBH Transportation)

Prior to the occupation of Building 2 on Plot B development, all accessible car parking spaces within that Plot shall be marked as such and retained permanently.

REASON: In order to ensure that a reasonable number of parking spaces are located conveniently for use by people with disabilities.

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B11) Cycle Parking (LBH Transportation)

Part A – Building 1

Prior to the occupation of Building 1 on Plot B, full details of the long stay cycle parking (including the type, dimensions and method of security and access), in line with the London Cycle Design Standards (LCDS, October 2016) within that Plot shall be submitted in writing to and approved by the Local Planning Authority. Cycle parking within Building 1 on Plot B shall be installed in accordance with the approved details.

Part B – Building 2
Prior to the occupation of Building 2 on Plot B, full details of the long stay cycle parking (including the type, dimensions and method of security and access), in line with the London Cycle Design Standards (LCDS, October 2016) within that Plot shall be submitted in writing to and approved by the Local Planning Authority. Cycle parking within Building 1 on Plot B shall be installed in accordance with the approved details.

REASON: To promote sustainable transport.

B12) Service and Delivery Plan (LBH Transportation)

Part A

Part (i) – Building 1

Prior to the residential occupation of Building 1 of the Plot B development, a full Residential Service and Delivery Plan (SDP) in respect of Building 1 within Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries for Building 1 within Plot B shall be undertaken in accordance with the approved plan.

Part (ii) – Building 2

Prior to the residential occupation of Building 2 of the Plot B development, a full Residential Service and Delivery Plan (SDP) in respect of Building 2 within Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries for Building 2 within Plot B shall be undertaken in accordance with the approved plan.

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Part B

Part (i) – Building 1

Prior to the occupation of the non-residential floorspace within Building 1 of Plot B, a full Service and Delivery Plan (SDP) for the non-residential uses within Building 1 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Building 1 of Plot B shall be undertaken in accordance with the approved plan.

Part (ii) – Building 2

Prior to the occupation of the non-residential floorspace within Building 2 of Plot B, a full Service and Delivery Plan (SDP) for the non-residential uses within Building 2 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Building 2 of Plot B shall be undertaken in accordance with the approved plan.

REASON: To reduce traffic and congestion on the transportation and highways network.

B13) Noise Level Testing Details (LBH Environmental Health – Noise)

Part A – Building 1

Prior to the occupation of Building 1 within the Plot B development, testing details (the scope of which shall be agreed with the Local Planning Authority prior to submission) confirming the noise levels cited in Site Wide condition 12 above have been met shall be submitted in writing to and for approval by the Local Planning Authority. The approved noise level shall be maintained within Building 1 of Plot B thereafter.

Part B – Building 2

Prior to the occupation of Building 2 within the Plot B development, testing details (the scope of which shall be agreed with the Local Planning Authority prior to submission) confirming the noise levels cited in Site Wide condition 12 above have been met shall be submitted in writing to and for approval by the Local Planning Authority. The approved noise level shall be maintained within Building 2 of Plot B thereafter.

REASON: To protect the amenity of occupiers.

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B14) Sound Insulation Between Residential and Commercial Properties (LBH Environmental Health – Noise)

Part A – Building 1

Prior to the commencement of the building works for the fit-out of the commercial units within Building 1 of Plot B, details of a Sound Insulation Scheme to be installed between the commercial premises and residential premises within Building 1 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The scheme shall be submitted following consultation with the Council's Environmental Health Officer (Noise). The scheme shall be installed as approved prior to any commercial occupation of Building 1 of Plot B and shall be maintained thereafter.

Part B – Building 2

Prior to the commencement of the building works for the fit-out of the commercial units within Building 2 of Plot B, details of a Sound Insulation Scheme to be installed between the commercial premises and residential premises within Building 2 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The scheme shall be submitted following consultation with the Council's Environmental Health Officer (Noise). The scheme shall be installed as approved prior to any commercial occupation of Building 2 of Plot B and shall be maintained thereafter.

REASON: to protect the amenity of the locality.

B15) Secure by Design Accreditation (Metropolitan Police)

Part A

Prior to carrying out above ground works within Plot B (excluding demolition and works to construct the building cores) details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that the Plot (and building(s) contained therein) has incorporated the principles and practices of Secured by Design where these can be practically achieved. Where the principles cannot be achieved, then justification for this will be required. The development within Plot B shall be implemented in accordance with the approved details.

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Part B

Prior to first occupation of each building or part of a building or use within Plot B, details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that such Plot (and building(s) contained therein) has delivered the principles and practices of Secured by Design, and as agreed by the Local Planning Authority in the discharge of Part A.

REASON: To ensure safe and secure development and reduce crime.

B16) Site Levels (LBH Development Management)

No development shall proceed within Plot B (excluding above ground demolition) until details of all existing and proposed levels on the Plot in relation to the adjoining properties have been submitted to and approved by the Local Planning Authority. The Plot B development shall be built in accordance with the approved details.
REASON: In order to ensure that any works in conjunction with the permission hereby granted respects the height of adjacent properties through suitable levels on the site.

B17) Open Space Management & Maintenance Plan (LBH Development Management)

Prior to the occupation of the Plot B development, an Open Space Management & Maintenance Plan in respect of the development within Plot B shall be submitted to and approved in writing by the Local Planning Authority The Plan shall include details of the following:

i) Long-term management and maintenance responsibilities for all private, communal play spaces/amenity spaces and all publicly accessible open spaces
ii) Soft landscaping management and maintenance arrangements to ensure positive contribution to biodiversity

Spaces within Plot B shall be managed and maintained in accordance with the approved Plan and maintained thereafter.

REASON: to ensure high quality open space

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B18) Child Playspace Strategy (LBH Development Management)

Part A – Building 1

Prior to the residential occupation of Building 1 on Plot B, a Child Play Space Strategy in respect of the development within Building 1 on Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The Strategy shall provide detail of child play spaces in accordance with the London Plan (2016) and the London Plan SPG Play and Informal Recreation (2012). The development within Building 1 of Plot B shall be implemented in accordance with the Strategy and maintained thereafter.

Part B – Building 2

Prior to the residential occupation of Building 2 on Plot B, a Child Play Space Strategy in respect of the development within Building 2 on Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The Strategy shall provide detail of child play spaces in accordance with the London Plan (2016) and the London Plan SPG Play and Informal Recreation (2012). The development within Building 2 of Plot B shall be implemented in accordance with the Strategy and maintained thereafter.

REASON: to ensure high quality development

B19) Monitoring and Maintenance Plan – Contamination (Environment Agency)

The Plot B development hereby permitted may not commence other than for investigative works until a monitoring and maintenance plan in respect of contamination within Plot B, including a timetable of monitoring and submission of reports to the Local Planning Authority, has been submitted to, and approved in writing by, the Local Planning Authority. Reports as specified in the approved plan, including details of any necessary contingency action arising from the monitoring, shall be submitted to, and approved in writing by, the Local Planning Authority.

REASON: To ensure that the site does not pose any further risk to human health or the water environment by managing any ongoing contamination issues and completing all necessary long-term remediation measures. This is in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

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B20) Contamination Not Previously Identified (Environment Agency)

If during development, contamination not previously identified is found to be present at Plot B then no further development in respect of that Plot (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved within Plot B.

REASON: To ensure that the development is not contributing to, put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution from previously unidentified contamination sources at the development site in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

B21) Written Consent for Piling or Other Intrusive Ground Works (Environment Agency)

Piling or other intrusive ground works (investigation boreholes, tunnel shafts, ground source heating and cooling systems) using penetrative methods which breach the base of the London Clay or where the London Clay is absent shall not be carried out other than with the written consent of the local planning authority. The development within Plot B shall be carried out in accordance with the approved details.

REASON: To ensure that the proposed piling activities through potentially contaminated land is not contributing to, put at unacceptable risk from, or adversely affected by unacceptable levels of water pollution caused by mobilised contaminants in line with paragraph 170 of the National Planning Policy Framework and the Environment Agency's approach to groundwater protection. To prevent deterioration of groundwater within the principal chalk aquifer.

B22) Method of Piling (LBH Environmental Health)

(1) No piling; or (2) other intrusive ground works which breach the base of the London Clay or occur in areas where the London Clay is absent within Plot B shall take place until a Piling Impact Study has been undertaken in respect of Plot B. The Piling Impact Study shall include the method of piling foundations and shall be submitted to and approved in writing by the Local Planning Authority. Piling or any other foundation design using penetrative methods shall not be permitted within Plot B except for those parts of Plot B where it has been demonstrated that there is no resultant unacceptable risk to ground water.

REASON: To prevent the contamination of the underlying groundwater aquifer

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B23) Written Scheme of Investigation (WSI) – Historic England (GLAAS)

No demolition or development (apart from demolition to slab level) shall take place within Plot B until a stage 1 written scheme of investigation (WSI) in respect of Plot B has been submitted to and approved by the local planning authority in writing. For land that is included within the WSI, no demolition or development (apart from demolition to slab level) shall take place within Plot B other than in accordance with the agreed WSI, and the programme and methodology of site evaluation and the nomination of a competent person(s) or organisation to undertake the agreed works.

If heritage assets of archaeological interest are identified by stage 1 then for those parts of the site which have archaeological interest a stage 2 WSI shall be submitted to and approved by the local planning authority in writing. For land that is included within the stage 2 WSI, no demolition/development (apart from demolition to slab level) shall take place within Plot B other than in accordance with the agreed stage 2 WSI which shall include:

A. The statement of significance and research objectives, the programme and methodology of site investigation and recording and the nomination of a competent person(s) or organisation to undertake the agreed works

B. The programme for post-investigation assessment and subsequent analysis, publication & dissemination and deposition of resulting material. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme set out in the stage 2 WSI.

REASON: To protect the Historic Environment

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B24) Contaminated Land – Part 1 (LBH Environmental Health)

Prior to the commencement of the development on Plot B (other than for investigative work):

a) Using the information obtained from the previous assessments, an additional site investigation, sampling and analysis shall be undertaken at the Plot as appropriate. The investigation must be comprehensive enough to enable:-

i) A risk assessment to be undertaken,
ii) Refinement of the Conceptual Model, and
ii) The development of a Method Statement detailing the remediation requirements.

The risk assessment and refined Conceptual Model shall be submitted, along with the site investigation report, to the Local Planning Authority.

b) If the risk assessment and refined Conceptual Model indicate any risk of harm, a Method Statement detailing the remediation requirements in respect of the Plot, using the information obtained from the site investigation, and also detailing any post remedial monitoring shall be submitted to, and approved in writing by, the Local Planning Authority prior to that remediation being carried out on the Plot.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

B25) Contaminated Land – Part 2 (LBH Environmental Health)

Where the contaminated land condition above demonstrates that remediation of contamination on the Plot is required, completion of the remediation detailed in the Method Statement shall be carried out and a report that provides verification that the required works have been carried out, shall be submitted to, and approved in writing by the Local Planning Authority before the development is occupied within Plot B.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

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B26) Development Near Subsurface Potable Water Infrastructure (Thames Water)

No construction shall take place within 5m of the water main unless otherwise agreed in writing with the Local Planning Authority in consultation with Thames Water. Information detailing how the developer intends to divert the asset / align the Plot B development, so as to prevent the potential for damage to subsurface potable water infrastructure, must be submitted to and approved in writing by the local planning authority in consultation with Thames Water. Any construction must be undertaken in accordance with the terms of the approved information. Unrestricted access must be available at all times for the maintenance and repair of the asset during and after the construction works.

REASON: The proposed works will be in close proximity to underground strategic water main, utility infrastructure. The works have the potential to impact on local underground water utility infrastructure.

B27) Central Satellite Dish/Receiving System (LBH Development Management)

Part A – Building 1

Prior to the residential occupation of Building 1 of the Plot B development, details of a Central Satellite Dish/Receiving System in respect of Building 1 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The System shall be implemented in accordance with approved details and maintained thereafter.

Part B – Building 2

Prior to the residential occupation of Building 2 of the Plot B development, details of a Central Satellite Dish/Receiving System in respect of Building 2 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The System shall be implemented in accordance with approved details and maintained thereafter.

REASON: To protect the amenity of the locality.

B28) Satellite Dish or Television Antenna (LBH Development Management)

The placement of any satellite dish or television antenna on any external surface of any building in the Plot is not permitted, excepting the approved central dish/receiving system noted in the condition above, unless agreed in writing with the Local Planning Authority.

REASON: To protect the amenity of the locality.

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B29) Demolition/Construction Environmental Management Plans

Part A

Demolition works shall not commence within Plot B until a Demolition Environmental Management Plan (DEMP) in respect of Plot B has been submitted to and approved in writing by the local planning authority.

Part B

Development shall not commence within Plot B (other than demolition) until a Construction Environmental Management Plan (CEMP) in respect of Plot B has been submitted to and approved in writing by the local planning authority.

The following applies to both Parts A and B above:

a) The DEMP/CEMP shall include a Construction Logistics Plan (CLP) and Air Quality and Dust Management Plan (AQDMP) in respect of Plot B.

b) The DEMP/CEMP shall provide details of how demolition/construction works in respect of Plot B are to be undertaken respectively and shall include:
   i. A construction method statement which identifies the stages and details how works will be undertaken;
   ii. Details of working hours, which unless otherwise agreed with the Local Planning Authority shall be limited to 08.00 to 18.00 Monday to Friday and 08.00 to 13.00 on Saturdays;
   iii. Details of plant and machinery to be used during demolition/construction works;
   iv. Details of an Unexploded Ordnance Survey;
   v. Details of the waste management strategy;
   vi. Details of community engagement arrangements;
   vii. Details of any acoustic hoarding;
   viii. A temporary drainage strategy and performance specification to control surface water runoff and Pollution Prevention Plan (in accordance with Environment Agency guidance);
   ix. Details of external lighting; and,
   x. Details of any other standard environmental management and control measures to be implemented.

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c) The CLP will be in accordance with Transport for London's Construction Logistics Plan Guidance (July 2017) and shall provide details on:

i. Monitoring and joint working arrangements, where appropriate;
ii. Site access and car parking arrangements;
iii. Delivery booking systems;
iv. Agreed routes to/from the Plot;
v. Timing of deliveries to and removals from the Plot (to avoid peak times, as agreed with Highways Authority, 07.00 to 9.00 and 16.00 to 18.00, where possible); and
vi. Travel plans for staff/personnel involved in demolition/construction works to detail the measures to encourage sustainable travel to the Plot during the demolition/construction phase; and
vii. Joint arrangements with neighbouring developers for staff parking, Lorry Parking and consolidation of facilities such as concrete batching.

c) The AQDMP will be in accordance with the Greater London Authority SPG Dust and Emissions Control (2014) and shall include:

i. Mitigation measures to manage and minimise demolition/construction dust emissions during works;
ii. Details confirming the Plot has been registered at http://nrmm.london;
iii. Evidence of Non-Road Mobile Machinery (NRMM) and plant registration shall be available on site in the event of Local Authority Inspection;
iv. An inventory of NRMM currently on site (machinery should be regularly serviced and service logs kept on site, which includes proof of emission limits for equipment for inspection);
v. A Dust Risk Assessment for the works; and
vi. Lorry Parking, in joint arrangement where appropriate.

The development on Plot B shall be carried out in accordance with the approved details.

Additionally, the site or Contractor Company must be registered with the Considerate Constructors Scheme. Proof of registration must be sent to the Local Planning Authority prior to any works being carried out.

Reason: To safeguard residential amenity, reduce congestion and mitigate obstruction to the flow of traffic, protect air quality and the amenity of the locality.

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B30) Details of Roof Top PV Panels

Part A – Building 1

Prior to the occupation of Building 1 of Plot B for residential purposes, details of the layout and specification of the PV solar panel installation in respect of Building 1 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Building 1 of Plot B shall be constructed in accordance with the approved details and maintained thereafter.

Part B – Building 2

Prior to the occupation of Building 2 of Plot B for residential purposes, details of the layout and specification of the PV solar panel installation in respect of Building 2 of Plot B shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Building 2 of Plot B shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure sustainable development and mitigate the impacts of climate change.

B31) Installation of Roof Top Structures (LBH Development Management)
Prior to the installation of any access ladders or building cleaning equipment at roof level of Plot B, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot B shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

B32) Source Protection Strategy (Ferry Island) – (Thames Water)

Prior to the commencement of the Plot B development (excluding above ground demolition), a Source Protection Strategy in respect of Plot B detailing how the developer intends to ensure the water abstraction source is not detrimentally affected by the proposed development both during and after its construction shall be submitted to and approved by, the local planning authority in consultation with the water undertaker (Thames Water). The development within Plot B shall be constructed in line with the recommendations of the strategy.

REASON: To ensure that the water resource is not detrimentally affected by the development.

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B33) Building 1 Internal Street (LBH Development Management)

Prior to installation, detailed drawings of the soffit serving the Building 1 internal street shall be submitted in writing to and for approval by the Local Planning Authority. The soffit shall be installed in accordance with the approved details prior to the residential occupation of Building 1 and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

B34) Opaque Glazing to Non-Residential Units (LBH Development Management)

Prior to the installation of any opaque glazing on the ground floor non-residential units of Plot B, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot B shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

B35) Cooling Demand (Great London Authority Energy)

Prior to the occupation of the non-residential floorspace within Plot B, details of measures to be undertaken to minimise the non-domestic cooling demand shall be submitted in writing to and for approval by the Local Planning Authority. The measures shall be incorporated in accordance with the approved details.

REASON: In the interest of adapting to climate change and to secure sustainable development.

B36) Overheating (Great London Authority Energy)

Prior to the residential occupation of the Plot B development, a Building User Guide for new residential occupants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide will advise residents how to operate their property during a heatwave, setting out a cooling hierarchy in accordance with London Plan (2016) Policy 5.9 with passive measures being considered ahead of cooling systems. The Building User Guide will be issued to residential occupants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

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B37) Heat Network (Great London Authority Energy)

Prior to the occupation of the non-residential floorspace within Plot B, a Building User Guide for new non-residential tenants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide shall explain that valved connections have been made available to each tenant, for the purpose of their primary heating and hot water generation. The Building User Guide will be issued to non-residential tenants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

B38) CO2 (Great London Authority Energy)

Prior to the occupation of each non-residential unit within Plot B, details demonstrating that a Seasonal Energy Efficiency Ratio (SEER) of 7.0 can be achieved shall be submitted in writing to and for approval by the Local Planning Authority. The development shall be occupied in accordance with the approved details.

REASON: In the interest of adapting to climate change and to secure sustainable development.

C. CONDITIONS RELATING TO WELBOURNE (PLOT C)

C1) Materials Samples (LBH Development Management)

Prior to the installation of materials on the external surfaces on the building(s) within Plot C, samples of materials to be used for the external surfaces of the building(s) hereby approved within Plot C, shall be submitted in writing to and for approval by the Local Planning Authority. Samples shall include type and shade of cladding, window frames and balcony frames, sample panels or brick types and a roofing material sample combined with a schedule of the exact product references. The development shall be constructed of the approved materials and maintained thereafter.

REASON: In order for the Local Planning Authority to retain control over the exact materials to be used for the proposed development and to assess the suitability of the samples submitted in the interests of visual amenity.

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C2) Waste Management Plan (LBH Waste Management)

Prior to the residential occupation of Plot C, a Residential Waste Management Plan in respect of Plot C shall be submitted in writing to and for approval by the Local Planning Authority.

Prior to the occupation of the Plot C non-residential floorspace, a Commercial Waste Management Plan in respect of Plot C shall be submitted in writing to and for approval by the Local Planning Authority.

The plans shall demonstrate as necessary:

- Any distances between waste storage areas and collection vehicles further than 10 metres are mitigated by appropriate management measures.
- Installed dropped kerbs relevant to servicing access have gradients no greater than 1:20
- Suitable pest control of waste storage areas.
- Separate commercial and residential waste storage and disposal
- In respect of the non-residential units, arrangements for a scheduled waste collection with a Commercial Waste Contractor
- A cleansing schedule and measures to ensure waste is contained at all times.

The development within Plot C shall be implemented in accordance with the approved Plan and maintained thereafter.

REASON: To protect the amenity of the locality

C3) Drainage – Attenuation Details (LBH Local Lead Flood Authority)

Prior to the commencement of the Plot C development other than demolition, below ground and building core works, full details of the drainage attenuation in respect of Plot C shall be submitted in writing to and for approval by the local Planning Authority.

Attenuation measures shall demonstrate compliance with the relevant London Plan (2016) Standards, in relation to greenfield runoff rate, and the approved details shall then be implemented as approved and maintained thereafter.

REASON: to mitigate flood risk.

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C4) Drainage - Design Implementation, Maintenance Management (LBH Local Lead Flood Authority)

Prior to commencement of the Plot C development other than demolition, below ground and building core works, details of design implementation, maintenance and management of the sustainable drainage scheme in respect of Plot C shall be submitted in writing to and for approval by the Local Planning Authority, those details shall include:-

i) Information about the design storm periods and intensity, discharge rates for both pre and post development, means of access for maintenance, methods used to control surface water discharge from the Plot.
ii) Any works required off site to ensure adequate discharge of surface water without causing flooding.
iii) Floodwater exceedance routes, both on and off site.
iv) Timetable for implementation.
v) A detailed management maintenance plan for the lifetime of the Plot C development, which shall include arrangements for adoption by an appropriate public body or statutory undertaker, management by Residents management company or other arrangements to secure the operation of the drainage scheme throughout the lifetime of the Plot C development.

The scheme shall be implemented, retained, managed and maintained within Plot C in accordance with the approved details.
REASON: To prevent increased risk of flooding to improve water quality and amenity to ensure future maintenance of the surface water drainage system.

C5) BREAAM – Post Occupation Certificate (LBH Carbon Management)

Six calendar months after the first non-residential occupation of the Plot, a BREEAM Post Construction Certificate in respect of the non-residential space within Plot C shall be submitted to the Local Planning Authority. The Certificate shall be issued by the Building Research Establishment (or another independent certification body). The development within Plot C shall maintain the rating in the approved Certificate thereafter unless agreed in writing with the Local Planning Authority.

REASON: In the interest of addressing climate change and to secure sustainable development

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C6) Overheating and Model Report (LBH Carbon Management)

Prior to above ground works within Plot C (excluding demolition and works to construct the building core), an Overheating Model and Report in respect of Plot C shall be submitted in writing to and for approval by the Local Planning Authority. The submission shall assess the overheating risk (using future weather temperature projections), and demonstrate how the risks have been mitigated and removed through design solutions. This assessment will use TM59 (for domestic) or TM52 (for non-domestic). Both models shall be run using the London Weather File TM49.

The submission shall include details of the design measures incorporated within the scheme within Plot C (including details of the feasibility of using external solar shading and passive cooling and ventilation) to ensure adaptation to higher temperatures are addressed, and the units do not overheat. The submission shall include the following:

A. Full listing (based on unit number relating to planning drawings) of units modelled and the overheating risk before measures are installed;

B. The measures installed to reduce overheating risk:

i. the standard and the impact of the solar control glazing;
ii. that all heating pipework is appropriately insulated
iii. that passive cooling and ventilation features have been included
iv. highlight the mitigation strategies to overcome any overheating risk
v. that there is space for pipe work or localised building services and that this is designed in to the building to allow the retrofitting of centralised or localised cooling and ventilation equipment if needed.

The submission shall preclude the use of air conditioning unless exceptional justification is given for design based upon current weather projection (CIBSE DSY 1). The development within Plot C shall be constructed in accordance with the approved submission.

REASON: In the interest of adapting to climate change and to secure sustainable development.

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C7) Biodiversity Plan (LBH Carbon Management)

Prior to the installation of the measures listed in items i to v below within Plot C, details of a Biodiversity Plan in respect of the development within Plot C shall be submitted in writing to and for approval by the Local Planning Authority. The Plan shall detail:

i. Details on the number, and location of the bird brick boxes (or other) - including orientation and links to habitats that would be needed to support the identified bird species;
ii. Details on the bird brick box (or other) design and for what bird species would they serve;
iii. The lighting measures and ongoing management to reduce the impact on recorded bat populations;
iv. The number, and location of the bat brick boxes; and
v. The number, and location of the insect hotels.

The development within Plot C shall be constructed in accordance with the approved Plan and the approved measures incorporated prior to the occupation of the development within Plot C. The approved biodiversity infrastructure should where possible preclude impacts by amenity uses and access should be permitted only for maintenance, repair or escape in an emergency.

REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

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C8) Green/living Roof Plan (LBH Carbon Management)

Prior to installation of green/living roofs, a Green/Living Roof Plan in respect of the development within Plot C shall be submitted in writing to and for approval by the Local Planning Authority. The Plan shall include:

- A roof(s) plan identifying where the living roofs will be located;
- Confirmation of the substrates depth ranges;
- Details on the diversity of substrate depths across the roof to provide contours of substrate;
- Details on the diversity of substrate types and sizes;
- Details on bare areas of substrate to allow for self colonisation of local windblown seeds and invertebrates;
- Details on the range of native species of wildflowers and herbs planted to benefit native wildlife precluding a overreliance on sedum;
- Details of the location of log piles / flat stones for invertebrates; and
- Schedule of ongoing maintenance and management

The measures should be incorporated prior to the occupation of the development within Plot C. The development within Plot C shall be carried out in accordance with the approved Plan and maintained thereafter.

REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

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C9) Boiler Details (LBH Environmental Health/Carbon Management)

Prior to above ground works within Plot C (excluding demolition and works to construct the building core), details of the boiler facilities and associated infrastructure within the Plot, shall be submitted to and approved in writing by the Local Planning Authority. The details shall include:

a) location of the energy centre;
b) specification of equipment and pipework;
c) details of all the flue arrangements and chimney heights calculations, diameters and locations;
d) confirmation that the boilers to be provided for space heating and domestic hot water shall have dry NOx emissions not exceeding 40 mg/kWh;
e) confirmation that the site wide heating and hot water network has been designed and shall be constructed following the CIBSE / ADE Heat Networks Code of Practice
f) operation/management strategy;
g) the method of how the facility and infrastructure shall be designed to allow for the future connection to any neighbouring heating network (including the proposed connectivity location, space for extra equipment, punch points and large enough route of the link); and
h) the route from the Energy Centre to the red line boundary with installed pipe specification to serve all heat loads.

The development within Plot C shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To protect air quality, ensure future district energy connection and protect the amenity of the locality.

C10) Accessible Parking Demarcated (LBH Transportation)

Prior to the occupation of the Plot C development, all accessible car parking spaces within that Plot shall be marked as such and retained permanently.

REASON: In order to ensure that a reasonable number of parking spaces are located conveniently for use by people with disabilities.

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C11) Cycle Parking (LBH Transportation)

Prior to the occupation of the Plot C development, full details of the long stay cycle parking (including the type, dimensions and method of security and access), in line with the London Cycle Design Standards (LCDS, October 2016) within that Plot shall be submitted in writing to and approved by the Local Planning Authority. Cycle parking within the Plot shall be installed in accordance with the approved details.

REASON: To promote sustainable transport.

C12) Service and Delivery Plan (LBH Transportation)

Part A

Prior to the residential occupation of the Plot C development, a full Residential Service and Delivery Plan (SDP) in respect of the development within Plot C shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Plot C shall be undertaken in accordance with the approved plan.

Part B

Prior to the occupation of the non-residential floorspace within Plot C, a full Service and Delivery Plan (SDP) for the non-residential uses within Plot C shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Plot C shall be undertaken in accordance with the approved plan.

REASON: To reduce traffic and congestion on the transportation and highways network.

C13) Noise Level Testing Details (LBH Environmental Health – Noise)

Prior to the occupation of the Plot C development, testing details (the scope of which shall be agreed with the Local Planning Authority prior to submission) confirming the noise levels cited in Site Wide condition 12 above have been met shall be submitted in writing to and for approval by the Local Planning Authority. The approved noise level shall be maintained within Plot C thereafter.

REASON: To protect the amenity of occupiers.

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C14) Sound Insulation Between Residential and Commercial Properties (LBH Environmental Health – Noise)

Prior to the commencement of the building works for the fit-out of the commercial units within Plot C, details of a Sound Insulation Scheme to be installed between the commercial premises and residential premises within Plot C shall be submitted in writing to and for approval by the Local Planning Authority. The scheme shall be submitted following consultation with the Council's Environmental Health Officer (Noise). The scheme shall be installed as approved prior to any commercial occupation of Plot C and shall be maintained thereafter.

REASON: to protect the amenity of the locality.

C15) Secure by Design Accreditation (Metropolitan Police)

Part A

Prior to carrying out above ground works within Plot C (excluding demolition and works to construct the building core) details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that the Plot (and building(s) contained therein) has incorporated the principles and practices of Secured by Design where these can be practically achieved. Where the principles cannot be achieved, then justification for this will be required. The development within Plot C shall be implemented in accordance with the approved details.

Part B

Prior to first occupation of each building or part of a building or use within Plot C, details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that such Plot (and building(s) contained therein) has delivered the principles and practices of Secured by Design, and as agreed by the Local Planning Authority in the discharge of Part A.

REASON: To ensure safe and secure development and reduce crime.

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C16) Site Levels (LBH Development Management)

No development shall proceed within Plot C (excluding above ground demolition) until details of all existing and proposed levels on the Plot in relation to the adjoining properties have been submitted to and approved by the Local Planning Authority. The Plot C development shall be built in accordance with the approved details.

REASON: In order to ensure that any works in conjunction with the permission hereby granted respects the height of adjacent properties through suitable levels on the site.

C17) Open Space Management & Maintenance Plan (LBH Development Management)

Prior to the occupation of the Plot C development, an Open Space Management & Maintenance Plan in respect of the development within Plot C shall be submitted to and approved in writing by the Local Planning Authority The Plan shall include details of the following:

i) Long-term management and maintenance responsibilities for all private, communal play spaces/amenity spaces and all publicly accessible open spaces
ii) Soft landscaping management and maintenance arrangements to ensure positive contribution to biodiversity

Spaces within Plot C shall be managed and maintained in accordance with the approved Plan and maintained thereafter.

REASON: to ensure high quality open space

C18) Child Playspace Strategy (LBH Development Management)

Prior to the residential occupation of Plot C, a Child Play Space Strategy in respect of the development within Plot C shall be submitted in writing to and for approval by the Local Planning Authority. The Strategy shall provide detail of child play spaces in accordance with the London Plan (2016) and the London Plan SPG Play and Informal Recreation (2012). The development within Plot C shall be implemented in accordance with the Strategy and maintained thereafter.

REASON: to ensure high quality development

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C19) Monitoring and Maintenance Plan – Contamination (Environment Agency)

The Plot C development hereby permitted may not commence other than for investigative works until a monitoring and maintenance plan in respect of contamination within Plot C, including a timetable of monitoring and submission of reports to the Local Planning Authority, has been submitted to, and approved in writing by, the Local Planning Authority. Reports as specified in the approved plan, including details of any necessary contingency action arising from the monitoring, shall be submitted to, and approved in writing by, the Local Planning Authority.

REASON: To ensure that the site does not pose any further risk to human health or the water environment by managing any ongoing contamination issues and completing all necessary long-term remediation measures. This is in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

C20) Contamination Not Previously Identified (Environment Agency)

If during development, contamination not previously identified is found to be present at Plot C then no further development in respect of that Plot (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved within Plot C.

REASONS: To ensure that the development is not contributing to, put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution from previously unidentified contamination sources at the development site in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

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C21) Written Consent for Piling or Other Intrusive Ground Works (Environment Agency)

Piling or other intrusive ground works (investigation boreholes, tunnel shafts, ground source heating and cooling systems) using penetrative methods which breach the base of the London Clay or where the London Clay is absent shall not be carried out other than with the written consent of the local planning authority. The development within Plot C shall be carried out in accordance with the approved details.

REASON: To ensure that the proposed piling activities through potentially contaminated land is not contributing to, put at unacceptable risk from, or adversely affected by unacceptable levels of water pollution caused by mobilised contaminants in line with paragraph 170 of the National Planning Policy Framework and the Environment Agency's approach to groundwater protection. To prevent deterioration of groundwater within the principal chalk aquifer.

C22) Method of Piling (LBH Environmental Health)

(1) No piling or; (2) other intrusive ground works which breach the base of the London Clay or occur in areas where the London Clay is absent within Plot C shall take place until a Piling Impact Study has been undertaken in respect of Plot C. The Piling Impact Study shall include the method of piling foundations and shall be submitted to and approved in writing by the Local Planning Authority. Piling or any other foundation design using penetrative methods shall not be permitted within Plot C except for those parts of Plot C where it has been demonstrated that there is no resultant unacceptable risk to ground water."

REASON: To prevent the contamination of the underlying groundwater aquifer

C23) Written Scheme of Investigation (WSI) – Historic England (GLAAS)

No demolition or development (apart from demolition to slab level) shall take place within Plot C until a stage 1 written scheme of investigation (WSI) in respect of Plot C has been submitted to and approved by the local planning authority in writing. For land that is included within the WSI, no demolition or development (apart from demolition to slab level) shall take place within Plot C other than in accordance with the agreed WSI, and the programme and methodology of site evaluation and the nomination of a competent person(s) or organisation to undertake the agreed works.

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If heritage assets of archaeological interest are identified by stage 1 then for those parts of the site which have archaeological interest a stage 2 WSI shall be submitted to and approved by the local planning authority in writing. For land that is included within the stage 2 WSI, no demolition/development (apart from demolition to slab level) shall take place within Plot C other than in accordance with the agreed stage 2 WSI which shall include:

A. The statement of significance and research objectives, the programme and methodology of site investigation and recording and the nomination of a competent person(s) or organisation to undertake the agreed works

B. The programme for post-investigation assessment and subsequent analysis, publication & dissemination and deposition of resulting material. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme set out in the stage 2 WSI.

REASON: To protect the Historic Environment

C24) Contaminated Land – Part 1 (LBH Environmental Health)

Prior to the commencement of the development on Plot C (other than for investigative work):

a) Using the information obtained from the previous assessments, an additional site investigation, sampling and analysis shall be undertaken at the Plot as appropriate. The investigation must be comprehensive enough to enable:-

i) A risk assessment to be undertaken,
ii) Refinement of the Conceptual Model, and
ii) The development of a Method Statement detailing the remediation requirements.

The risk assessment and refined Conceptual Model shall be submitted, along with the site investigation report, to the Local Planning Authority.

b) If the risk assessment and refined Conceptual Model indicate any risk of harm, a Method Statement detailing the remediation requirements in respect of the Plot, using the information obtained from the site investigation, and also detailing any post remedial monitoring shall be submitted to, and approved in writing by, the Local Planning Authority prior to that remediation being carried out on the Plot.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

C25) Contaminated Land – Part 2 (LBH Environmental Health)

Where the contaminated land condition above demonstrates that remediation of contamination on the Plot is required, completion of the remediation detailed in the Method Statement shall be carried out and a report that provides verification that the required works have been carried out, shall be submitted to, and approved in writing by the Local Planning Authority before the development is occupied within Plot C.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

C26) Development Near Subsurface Potable Water Infrastructure (Thames Water)

No construction shall take place within 5m of the water main unless otherwise agreed in writing with the Local Planning Authority in consultation with Thames Water. Information detailing how the developer intends to divert the asset / align the Plot C development, so as to prevent the potential for damage to subsurface potable water infrastructure, must be submitted to and approved in writing by the local planning authority in consultation with Thames Water. Any construction must be undertaken in accordance with the terms of the approved information. Unrestricted access must be available at all times for the maintenance and repair of the asset during and after the construction works.

REASON: The proposed works will be in close proximity to underground strategic water main, utility infrastructure. The works have the potential to impact on local underground water utility infrastructure.

C27) Central Satellite Dish/Receiving System (LBH Development Management)

Prior to the residential occupation of the Plot C development, details of a Central Satellite Dish/Receiving System in respect of Plot C shall be submitted in writing to and for approval by the Local Planning Authority. The System shall be implemented in accordance with approved details and maintained thereafter.

REASON: To protect the amenity of the locality.

C28) Satellite Dish or Television Antenna (LBH Development Management)

The placement of any satellite dish or television antenna on any external surface of any building in the Plot is not permitted, excepting the approved central dish/receiving system noted in the condition above, unless agreed in writing with the Local Planning Authority.

REASON: To protect the amenity of the locality.

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C29) Demolition/Construction Environmental Management Plans (LBH Development Management)

Part A

Demolition works shall not commence within Plot C until a Demolition Environmental Management Plan (DEMP) in respect of Plot C has been submitted to and approved in writing by the local planning authority.

Part B

Development shall not commence within Plot C (other than demolition) until a Construction Environmental Management Plan (CEMP) in respect of Plot C has been submitted to and approved in writing by the local planning authority.

The following applies to both Parts A and B above:

a) The DEMP/CEMP shall include a Construction Logistics Plan (CLP) and Air Quality and Dust Management Plan (AQDMP) in respect of Plot C.

b) The DEMP/CEMP shall provide details of how demolition/construction works in respect of Plot C are to be undertaken respectively and shall include:

i. A construction method statement which identifies the stages and details how works will be undertaken;
ii. Details of working hours, which unless otherwise agreed with the Local Planning Authority shall be limited to 08.00 to 18.00 Monday to Friday and 08.00 to 13.00 on Saturdays;
iii. Details of plant and machinery to be used during demolition/construction works;
iv. Details of an Unexploded Ordnance Survey;
v. Details of the waste management strategy;
vi. Details of community engagement arrangements;
vii. Details of any acoustic hoarding;
viii. A temporary drainage strategy and performance specification to control surface water runoff and Pollution Prevention Plan (in accordance with Environment Agency guidance);
ix. Details of external lighting; and,
x. Details of any other standard environmental management and control measures to be implemented.

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c) The CLP will be in accordance with Transport for London's Construction Logistics Plan Guidance (July 2017) and shall provide details on:

i. Monitoring and joint working arrangements, where appropriate;
ii. Site access and car parking arrangements;
iii. Delivery booking systems;
iv. Agreed routes to/from the Plot;
v. Timing of deliveries to and removals from the Plot (to avoid peak times, as agreed with Highways Authority, 07.00 to 9.00 and 16.00 to 18.00, where possible); and
vi. Travel plans for staff/personnel involved in demolition/construction works to detail the measures to encourage sustainable travel to the Plot during the demolition/construction phase; and
vii. Joint arrangements with neighbouring developers for staff parking, Lorry Parking and consolidation of facilities such as concrete batching.

d) The AQDMP will be in accordance with the Greater London Authority SPG Dust and Emissions Control (2014) and shall include:

i. Mitigation measures to manage and minimise demolition/construction dust emissions during works;
ii. Details confirming the Plot has been registered at http://nrmm.london;
iii. Evidence of Non-Road Mobile Machinery (NRMM) and plant registration shall be available on site in the event of Local Authority Inspection;
iv. An inventory of NRMM currently on site (machinery should be regularly serviced and service logs kept on site, which includes proof of emission limits for equipment for inspection);
v. A Dust Risk Assessment for the works; and
vi. Lorry Parking, in joint arrangement where appropriate.

The development on Plot C shall be carried out in accordance with the approved details.

Additionally, the site or Contractor Company must be registered with the Considerate Constructors Scheme. Proof of registration must be sent to the Local Planning Authority prior to any works being carried out.

Reason: To safeguard residential amenity, reduce congestion and mitigate obstruction to the flow of traffic, protect air quality and the amenity of the locality.

C30) Details of Roof Top PV Panels (LBH Development Management)

Prior to the occupation of Plot C for residential purposes, details of the layout and specification of the PV solar panel installation in respect of Plot C shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot C shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure sustainable development and mitigate the impacts of climate change.

C31) Installation of Roof Top Structures (LBH Development Management)

Prior to the installation of any access ladders or building cleaning equipment at the roof level of Plot C, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot C shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

C32) Health Centre Operation and Parking Plan (LBH Development Management)
Prior to the operation of the health centre, a Health Centre Operation and Parking Management Plan shall be submitted in writing to and for approval by the Local Planning Authority. The Plan shall address ambulance and GP parking. The plan shall be implemented as approved.

REASON: to protect the amenity of the locality.

C33) Opaque Glazing to non-residential units

Prior to the installation of any opaque glazing on the ground floor non-residential units of Plot C, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot C shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

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C34) Overheating (Great London Authority Energy)

Prior to the residential occupation of the Plot C development, a Building User Guide for new residential occupants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide will advise residents how to operate their property during a heatwave, setting out a cooling hierarchy in accordance with London Plan (2016) Policy 5.9 with passive measures being considered ahead of cooling systems. The Building User Guide will be issued to residential occupants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

C35) Heat Network (Great London Authority Energy)

Prior to the occupation of the non-residential floorspace within Plot C, a Building User Guide for new non-residential tenants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide shall explain that valved connections have been made available to each tenant, for the purpose of their primary heating and hot water generation. The Building User Guide will be issued to non-residential tenants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

C36) CO2 (Great London Authority Energy)

Prior to the occupation of each non-residential unit within Plot C, details demonstrating that a Seasonal Energy Efficiency Ratio (SEER) of 7.0 can be achieved shall be submitted in writing to and for approval by the Local Planning Authority. The development shall be occupied in accordance with the approved details.

REASON: In the interest of adapting to climate change and to secure sustainable development.

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D. CONDITIONS RELATING TO ASHLEY ROAD WEST (PLOT D)

D1) Materials Samples (LBH Development Management)

Prior to the installation of materials on the external surfaces on the building(s) within Plot D, samples of materials to be used for the external surfaces of the building(s) hereby approved within Plot D, shall be submitted in writing to and for approval by the Local Planning Authority. Samples shall include type and shade of cladding, window frames and balcony frames, sample panels or brick types and a roofing material sample combined with a schedule of the exact product references. The development shall be constructed of the approved materials and maintained thereafter.

REASON: In order for the Local Planning Authority to retain control over the exact materials to be used for the proposed development and to assess the suitability of the samples submitted in the interests of visual amenity.

D2) Waste Management Plan (LBH Waste Management)

Prior to the residential occupation of Plot D, a Residential Waste Management Plan in respect of Plot D shall be submitted in writing to and for approval by the Local Planning Authority.

Prior to the occupation of the Plot D non-residential floorspace, a Commercial Waste Management Plan in respect of Plot D shall be submitted in writing to and for approval by the Local Planning Authority.
The plans shall demonstrate as necessary:

- Any distances between waste storage areas and collection vehicles further than 10 metres are mitigated by appropriate management measures.
- Installed dropped kerbs relevant to servicing access have gradients no greater than 1:20
- Suitable pest control of waste storage areas.
- Separate commercial and residential waste storage and disposal
- In respect of the non-residential units, arrangements for a scheduled waste collection with a Commercial Waste Contractor
- A cleansing schedule and measures to ensure waste is contained at all times.

The development within Plot D shall be implemented in accordance with the approved Plan and maintained thereafter.

REASON: To protect the amenity of the locality

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D3) Drainage – Attenuation Details (LBH Local Lead Flood Authority)

Prior to the commencement of the Plot D development other than demolition, below ground and building core works, full details of the drainage attenuation in respect of Plot D shall be submitted in writing to and for approval by the local Planning Authority.

Attenuation measures shall demonstrate compliance with the relevant London Plan (2016) Standards, in relation to greenfield runoff rate, and the approved details shall then be implemented as approved and maintained thereafter.
REASON: to mitigate flood risk.

D4) Drainage - Design Implementation, Maintenance Management (LBH Local Lead Flood Authority)

Prior to commencement of the Plot D development other than demolition, below ground and building core works, details of design implementation, maintenance and management of the sustainable drainage scheme in respect of Plot D shall be submitted in writing to and for approval by the Local Planning Authority, those details shall include:-

i) Information about the design storm periods and intensity, discharge rates for both pre and post development, means of access for maintenance, methods used to control surface water discharge from the Plot.
ii) Any works required off site to ensure adequate discharge of surface water without causing flooding.
iii) Floodwater exceedance routes, both on and off site.
iv) Timetable for implementation.
v) A detailed management maintenance plan for the lifetime of the Plot D development, which shall include arrangements for adoption by an appropriate public body or statutory undertaker, management by Residents management company or other arrangements to secure the operation of the drainage scheme throughout the lifetime of the Plot D development.

The scheme shall be implemented, retained, managed and maintained within Plot D in accordance with the approved details.

REASON: To prevent increased risk of flooding to improve water quality and amenity to ensure future maintenance of the surface water drainage system.

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D5) BREAAM – Post Occupation Certificate (LBH Carbon Management)

Six calendar months after the first non-residential occupation of the Plot, a BREEAM Post Construction Certificate in respect of the non-residential space within Plot D shall be submitted to the Local Planning Authority. The Certificate shall be issued by the Building Research Establishment (or another independent certification body). The development within Plot D shall maintain the rating in the approved Certificate thereafter unless agreed in writing with the Local Planning Authority.

REASON: In the interest of addressing climate change and to secure sustainable development

D6) Overheating and Model Report (LBH Carbon Management)

Prior to above ground works within Plot D (excluding demolition and works to construct the building core), an Overheating Model and Report in respect of Plot D shall be submitted in writing to and for approval by the Local Planning Authority. The submission shall assess the overheating risk (using future weather temperature projections), and demonstrate how the risks have been mitigated and removed through design solutions. This assessment will use TM59 (for domestic) or TM52 (for non-domestic). Both models shall be run using the London Weather File TM49.

The submission shall include details of the design measures incorporated within the scheme within Plot D (including details of the feasibility of using external solar shading and passive cooling and ventilation) to ensure adaptation to higher temperatures are addressed, and the units do not overheat. The submission shall include the following:

A. Full listing (based on unit number relating to planning drawings) of units modelled and the overheating risk before measures are installed;
B. The measures installed to reduce overheating risk:

i. the standard and the impact of the solar control glazing;
ii. that all heating pipework is appropriately insulated
iii. that passive cooling and ventilation features have been included
iv. highlight the mitigation strategies to overcome any overheating risk
v. that there is space for pipe work or localised building services and that this is designed in to the building to allow the retrofitting of centralised or localised cooling and ventilation equipment if needed.

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The submission shall preclude the use of air conditioning unless exceptional justification is given for design based upon current weather projection (CIBSE DSY 1). The development within Plot D shall be constructed in accordance with the approved submission.

REASON: In the interest of adapting to climate change and to secure sustainable development.

D7) Biodiversity Plan (LBH Carbon Management)

Prior to the installation of the measures listed in items i to v below within Plot D, details of a Biodiversity Plan in respect of the development within Plot D shall be submitted in writing to and for approval by the Local Planning Authority. The Plan shall detail:

i. Details on the number, and location of the bird brick boxes (or other) - including orientation and links to habitats that would be needed to support the identified bird species;
ii. Details on the bird brick box (or other) design and for what bird species would they serve;
iii. The lighting measures and ongoing management to reduce the impact on recorded bat populations;
iv. The number, and location of the bat brick boxes; and
v. The number, and location of the insect hotels.

The development within Plot D shall be constructed in accordance with the approved Plan and the approved measures incorporated prior to the occupation of the development within Plot D. The approved biodiversity infrastructure should where possible preclude impacts by amenity uses and access should be permitted only for maintenance, repair or escape in an emergency.

REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

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D8) Green/living Roof Plan (LBH Carbon Management)

Prior to installation of green/living roofs, a Green/Living Roof Plan in respect of the development within Plot D shall be submitted in writing to and for approval by the Local Planning Authority. The Plan shall include:

- A roof(s) plan identifying where the living roofs will be located;
- Confirmation of the substrates depth ranges;
- Details on the diversity of substrate depths across the roof to provide contours of substrate;
- Details on the diversity of substrate types and sizes;
- Details on bare areas of substrate to allow for self colonisation of local windblown seeds and invertebrates;
- Details on the range of native species of wildflowers and herbs planted to benefit native wildlife precluding a overreliance on sedum;
- Details of the location of log piles / flat stones for invertebrates; and
- Schedule of ongoing maintenance and management

The measures should be incorporated prior to the occupation of the development within Plot D. The development within Plot D shall be carried out in accordance with the approved Plan and maintained thereafter.

REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

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D9) Boiler Details (LBH Environmental Health/Carbon Management)

Prior to above ground works within Plot D (excluding demolition and works to construct the building core), details of the boiler facilities and associated infrastructure within the Plot, shall be submitted to and approved in writing by the Local Planning Authority. The details shall include:

a) location of the energy centre;
b) specification of equipment and pipework;
c) details of all the flue arrangements and chimney heights calculations, diameters and locations;
d) confirmation that the boilers to be provided for space heating and domestic hot water shall have dry NOx emissions not exceeding 40 mg/kWh;
e) confirmation that the site wide heating and hot water network has been designed and shall be constructed following the CIBSE / ADE Heat Networks Code of Practice
f) operation/management strategy;
g) the method of how the facility and infrastructure shall be designed to allow for the future connection to any neighbouring heating network (including the proposed connectivity location, space for extra equipment, punch points and large enough route of the link); and
h) the route from the Energy Centre to the red line boundary with installed pipe specification to serve all heat loads.

The development within Plot D shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To protect air quality, ensure future district energy connection and protect the amenity of the locality.

D10) Accessible Parking Demarcated (LBH Transportation)

Prior to the occupation of the Plot D development, all accessible car parking spaces within that Plot shall be marked as such and retained permanently.

REASON: In order to ensure that a reasonable number of parking spaces are located conveniently for use by people with disabilities.

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D11) Cycle Parking (LBH Transportation)

Prior to the occupation of the Plot D development, full details of the long stay cycle parking (including the type, dimensions and method of security and access), in line with the London Cycle Design Standards (LCDS, October 2016) within that Plot shall be submitted in writing to and approved by the Local Planning Authority. Cycle parking within the Plot shall be installed in accordance with the approved details.

REASON: To promote sustainable transport.

D12) Service and Delivery Plan (LBH Transportation)

Part A

Prior to the residential occupation of the Plot D development, a full Residential Service and Delivery Plan (SDP) in respect of the development within Plot D shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Plot D shall be undertaken in accordance with the approved plan.

Part B

Prior to the occupation of the non-residential floorspace within Plot D, a full Service and Delivery Plan (SDP) for the non-residential uses within Plot D shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Plot D shall be undertaken in accordance with the approved plan.

REASON: To reduce traffic and congestion on the transportation and highways network.

D13) Noise Level Testing Details (LBH Environmental Health – Noise)

Prior to the occupation of the Plot D development, testing details (the scope of which shall be agreed with the Local Planning Authority prior to submission) confirming the noise levels cited in Site Wide condition 12 above have been met shall be submitted in writing to and for approval by the Local Planning Authority. The approved noise level shall be maintained within Plot D thereafter.

REASON: To protect the amenity of occupiers.

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D14) Sound Insulation Between Residential and Commercial Properties (LBH Environmental Health – Noise)

Prior to the commencement of the building works for the fit-out of the commercial units within Plot D, details of a Sound Insulation Scheme to be installed between the commercial premises and residential premises within Plot D shall be submitted in writing to and for approval by the Local Planning Authority. The scheme shall be submitted following consultation with the Council's Environmental Health Officer (Noise). The scheme shall be installed as approved prior to any commercial occupation of Plot D and shall be maintained thereafter.
REASON: to protect the amenity of the locality.

D15) Secure by Design Accreditation (Metropolitan Police)

Part A

Prior to carrying out above ground works within Plot D (excluding demolition and works to construct the building core) details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that the Plot (and building(s) contained therein) has incorporated the principles and practices of Secured by Design where these can be practically achieved. Where the principles cannot be achieved, then justification for this will be required. The development within Plot D shall be implemented in accordance with the approved details.

Part B

Prior to first occupation of each building or part of a building or use within Plot D, details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that such Plot (and building(s) contained therein) has delivered the principles and practices of Secured by Design, and as agreed by the Local Planning Authority in the discharge of Part A.

REASON: To ensure safe and secure development and reduce crime.

D16) Site Levels (LBH Development Management)

No development shall proceed within Plot D (excluding above ground demolition) until details of all existing and proposed levels on the Plot in relation to the adjoining properties have been submitted to and approved by the Local Planning Authority. The Plot D development shall be built in accordance with the approved details.
REASON: In order to ensure that any works in conjunction with the permission hereby granted respects the height of adjacent properties through suitable levels on the site.

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D17) Open Space Management & Maintenance Plan (LBH Development Management)

Prior to the occupation of the Plot D development, an Open Space Management & Maintenance Plan in respect of the development within Plot D shall be submitted to and approved in writing by the Local Planning Authority The Plan shall include details of the following:

i) Long-term management and maintenance responsibilities for all private, communal play spaces/amenity spaces and all publicly accessible open spaces
ii) Soft landscaping management and maintenance arrangements to ensure positive contribution to biodiversity

Spaces within Plot D shall be managed and maintained in accordance with the approved Plan and maintained thereafter.

REASON: to ensure high quality open space

D18) Child Playspace Strategy (LBH Development Management)

Prior to the residential occupation of Plot D, a Child Play Space Strategy in respect of the development within Plot D shall be submitted in writing to and for approval by the Local Planning Authority. The Strategy shall provide detail of child play spaces in accordance with the London Plan (2016) and the London Plan SPG Play and Informal Recreation (2012). The development within Plot D shall be implemented in accordance with the Strategy and maintained thereafter.

REASON: to ensure high quality development

D19) Monitoring and Maintenance Plan – Contamination (Environment Agency)

The Plot D development hereby permitted may not commence other than for investigative works until a monitoring and maintenance plan in respect of contamination within Plot D, including a timetable of monitoring and submission of reports to the Local Planning Authority, has been submitted to, and approved in writing by, the Local Planning Authority. Reports as specified in the approved plan, including details of any necessary contingency action arising from the monitoring, shall be submitted to, and approved in writing by, the Local Planning Authority.

REASON: To ensure that the site does not pose any further risk to human health or the water environment by managing any ongoing contamination issues and completing all necessary long-term remediation measures. This is in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

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D20) Contamination Not Previously Identified (Environment Agency)

If during development, contamination not previously identified is found to be present at Plot D then no further development in respect of that Plot (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved within Plot D.

REASON: To ensure that the development is not contributing to, put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution from previously unidentified contamination sources at the development site in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

D21) Written Consent for Piling or Other Intrusive Ground Works (Environment Agency)

Piling or other intrusive ground works (investigation boreholes, tunnel shafts, ground source heating and cooling systems) using penetrative methods which breach the base of the London Clay or where the London Clay is absent shall not be carried out other than with the written consent of the local planning authority. The development within Plot D shall be carried out in accordance with the approved details.

REASON: To ensure that the proposed piling activities through potentially contaminated land is not contributing to, put at unacceptable risk from, or adversely affected by unacceptable levels of water pollution caused by mobilised contaminants in line with paragraph 170 of the National Planning Policy Framework and the Environment Agency's approach to groundwater protection. To prevent deterioration of groundwater within the principal chalk aquifer.

D22) Method of Piling (LBH Environmental Health)

(1) No piling; or (2) other intrusive ground works which breach the base of the London Clay or occur in areas where the London Clay is absent within Plot D shall take place until a Piling Impact Study has been undertaken in respect of Plot D. The Piling Impact Study shall include the method of piling foundations and shall be submitted to and approved in writing by the Local Planning Authority. Piling or any other foundation design using penetrative methods shall not be permitted within Plot D except for those parts of Plot D where it has been demonstrated that there is no resultant unacceptable risk to ground water."

REASON: To prevent the contamination of the underlying groundwater aquifer

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D23) Written Scheme of Investigation (WSI) – Historic England (GLAAS)

No demolition or development (apart from demolition to slab level) shall take place within Plot D until a stage 1 written scheme of investigation (WSI) in respect of Plot D has been submitted to and approved by the local planning authority in writing. For land that is included within the WSI, no demolition or development (apart from demolition to slab level) shall take place within Plot D other than in accordance with the agreed WSI, and the programme and methodology of site evaluation and the nomination of a competent person(s) or organisation to undertake the agreed works.

If heritage assets of archaeological interest are identified by stage 1 then for those parts of the site which have archaeological interest a stage 2 WSI shall be submitted to and approved by the local planning authority in writing. For land that is included within the stage 2 WSI, no demolition/development (apart from demolition to slab level) shall take place within Plot D other than in accordance with the agreed stage 2 WSI which shall include:

A. The statement of significance and research objectives, the programme and methodology of site investigation and recording and the nomination of a competent person(s) or organisation to undertake the agreed works

B. The programme for post-investigation assessment and subsequent analysis, publication & dissemination and deposition of resulting material. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme set out in the stage 2 WSI.

REASON: To protect the Historic Environment

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D24) Contaminated Land – Part 1 (LBH Environmental Health)

Prior to the commencement of the development on Plot D (other than for investigative work):

a) Using the information obtained from the previous assessments, an additional site investigation, sampling and analysis shall be undertaken at the Plot as appropriate. The investigation must be comprehensive enough to enable:-

i) A risk assessment to be undertaken,
ii) Refinement of the Conceptual Model, and
ii) The development of a Method Statement detailing the remediation requirements.

The risk assessment and refined Conceptual Model shall be submitted, along with the site investigation report, to the Local Planning Authority.

b) If the risk assessment and refined Conceptual Model indicate any risk of harm, a Method Statement detailing the remediation requirements in respect of the Plot, using the information obtained from the site investigation, and also detailing any post remedial monitoring shall be submitted to, and approved in writing by, the Local Planning Authority prior to that remediation being carried out on the Plot.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

D25) Contaminated Land – Part 2 (LBH Environmental Health)

Where the contaminated land condition above demonstrates that remediation of contamination on the Plot is required, completion of the remediation detailed in the Method Statement shall be carried out and a report that provides verification that the required works have been carried out, shall be submitted to, and approved in writing by the Local Planning Authority before the development is occupied within Plot D.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

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D26) Development Near Subsurface Potable Water Infrastructure (Thames Water)

No construction shall take place within 5m of the water main unless otherwise agreed in writing with the Local Planning Authority in consultation with Thames Water. Information detailing how the developer intends to divert the asset / align the Plot D development, so as to prevent the potential for damage to subsurface potable water infrastructure, must be submitted to and approved in writing by the local planning authority in consultation with Thames Water. Any construction must be undertaken in accordance with the terms of the approved information. Unrestricted access must be available at all times for the maintenance and repair of the asset during and after the construction works.

REASON: The proposed works will be in close proximity to underground strategic water main, utility infrastructure. The works have the potential to impact on local underground water utility infrastructure.

D27) Central Satellite Dish/Receiving System (LBH Development Management)

Prior to the residential occupation of the Plot D development, details of a Central Satellite Dish/Receiving System in respect of Plot D shall be submitted in writing to and for approval by the Local Planning Authority. The System shall be implemented in accordance with approved details and maintained thereafter.

REASON: To protect the amenity of the locality.

D28) Satellite Dish or Television Antenna (LBH Development Management)

The placement of any satellite dish or television antenna on any external surface of any building in the Plot is not permitted, excepting the approved central dish/receiving system noted in the condition above, unless agreed in writing with the Local Planning Authority.

REASON: To protect the amenity of the locality.

D29) Demolition/Construction Environmental Management Plans

Part A

Demolition works shall not commence within Plot D until a Demolition Environmental Management Plan (DEMP) in respect of Plot D has been submitted to and approved in writing by the local planning authority.

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Part B

Development shall not commence within Plot D (other than demolition) until a Construction Environmental Management Plan (CEMP) in respect of Plot D has been submitted to and approved in writing by the local planning authority.

The following applies to both Parts A and B above:

a) The DEMP/CEMP shall include a Construction Logistics Plan (CLP) and Air Quality and Dust Management Plan (AQDMP) in respect of Plot D.

b) The DEMP/CEMP shall provide details of how demolition/construction works in respect of Plot D are to be undertaken respectively and shall include:
   i. A construction method statement which identifies the stages and details how works will be undertaken;
   ii. Details of working hours, which unless otherwise agreed with the Local Planning Authority shall be limited to 08.00 to 18.00 Monday to Friday and 08.00 to 13.00 on Saturdays;
   iii. Details of plant and machinery to be used during demolition/construction works;
   iv. Details of an Unexploded Ordnance Survey;
   v. Details of the waste management strategy;
   vi. Details of community engagement arrangements;
   vii. Details of any acoustic hoarding;
   viii. A temporary drainage strategy and performance specification to control surface water runoff and Pollution Prevention Plan (in accordance with Environment Agency guidance);
   ix. Details of external lighting; and,
   x. Details of any other standard environmental management and control measures to be implemented.

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c) The CLP will be in accordance with Transport for London's Construction Logistics Plan Guidance (July 2017) and shall provide details on:

i. Monitoring and joint working arrangements, where appropriate;
ii. Site access and car parking arrangements;
iii. Delivery booking systems;
iv. Agreed routes to/from the Plot;
v. Timing of deliveries to and removals from the Plot (to avoid peak times, as agreed with Highways Authority, 07.00 to 9.00 and 16.00 to 18.00, where possible); and
vi. Travel plans for staff/personnel involved in demolition/construction works to detail the measures to encourage sustainable travel to the Plot during the demolition/construction phase; and
vii. Joint arrangements with neighbouring developers for staff parking, Lorry Parking and consolidation of facilities such as concrete batching.

d) The AQDMP will be in accordance with the Greater London Authority SPG Dust and Emissions Control (2014) and shall include:

i. Mitigation measures to manage and minimise demolition/construction dust emissions during works;
ii. Details confirming the Plot has been registered at http://nrmm.london;
iii. Evidence of Non-Road Mobile Machinery (NRMM) and plant registration shall be available on site in the event of Local Authority Inspection;
iv. An inventory of NRMM currently on site (machinery should be regularly serviced and service logs kept on site, which includes proof of emission limits for equipment for inspection);
v. A Dust Risk Assessment for the works; and
vi. Lorry Parking, in joint arrangement where appropriate.

The development on Plot D shall be carried out in accordance with the approved details.

Additionally, the site or Contractor Company must be registered with the Considerate Constructors Scheme. Proof of registration must be sent to the Local Planning Authority prior to any works being carried out.

REASON: To safeguard residential amenity, reduce congestion and mitigate obstruction to the flow of traffic, protect air quality and the amenity of the locality.

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D30) Details of Roof Top PV Panels (LBH Development Management)

Prior to the occupation of Plot D for residential purposes, details of the layout and specification of the PV solar panel installation in respect of Plot D shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot D shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure sustainable development and mitigate the impacts of climate change.

D31) Installation of Roof Top Structures (LBH Development Management)

Prior to the installation of any access ladders or building cleaning equipment at the roof level of Plot D, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot D shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

D32) Ashley Road Façade (LBH Development Management)

Prior to above ground works on Plot D (excluding demolition and works to construct the building Core within Plot D), detailed elevation drawings of the Ashley Road façade shall be submitted in writing to and for approval by the Local Planning Authority. The development within Plot D shall be carried out in accordance with the approved details.

REASON: To ensure that the building has a satisfactory appearance.

D33) Hale Road Gable Opportunity (LBH Development Management)

Prior to the residential occupation of Plot D, details of the finish to the Hale Road gable façade shall be submitted in writing to and for approval by the Local Planning Authority. The development on Plot D shall be carried out in accordance with the approved details and maintained until any redevelopment of the adjacent site to the west of the Plot commences unless otherwise agreed in writing with the Local Planning Authority.

REASON: To ensure that the building has a satisfactory appearance.

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D34) Opaque Glazing to Non-Residential Units (LBH Development Management)

Prior to the installation of any opaque glazing on the ground floor non-residential units of Plot D, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot D shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

D35) Overheating (Great London Authority Energy)

Prior to the residential occupation of the Plot D development, a Building User Guide for new residential occupants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide will advise residents how to operate their property during a heatwave, setting out a cooling hierarchy in accordance with London Plan (2016) Policy 5.9 with passive measures being considered ahead of cooling systems. The Building User Guide will be issued to residential occupants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

D36) Heat Network (Great London Authority Energy)

Prior to the occupation of the non-residential floorspace within Plot D, a Building User Guide for new non-residential tenants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide shall explain that valved connections have been made available to each tenant, for the purpose of their primary heating and hot water generation. The Building User Guide will be issued to non-residential tenants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

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D37) CO2 (Great London Authority Energy)

Prior to the occupation of each non-residential unit within Plot D, details demonstrating that a Seasonal Energy Efficiency Ratio (SEER) of 7.0 can be achieved shall be submitted in writing to and for approval by the Local Planning Authority. The development shall be occupied in accordance with the approved details.

REASON: In the interest of adapting to climate change and to secure sustainable development.

E. CONDITIONS RELATING TO ASHLEY ROAD EAST (PLOT E)

E1) Materials Samples (LBH Development Management)

Prior to the installation of materials on the external surfaces on the building(s) within Plot E, samples of materials to be used for the external surfaces of the building(s) hereby approved within Plot E, shall be submitted in writing to and for approval by the Local Planning Authority. Samples shall include type and shade of cladding, window frames and balcony frames, sample panels or brick types and a roofing material sample combined with a schedule of the exact product references. The development shall be constructed of the approved materials and maintained thereafter.

REASON: In order for the Local Planning Authority to retain control over the exact materials to be used for the proposed development and to assess the suitability of the samples submitted in the interests of visual amenity.

E2) Waste Management Plan (LBH Waste Management)

Prior to the residential occupation of Plot E, a Residential Waste Management Plan in respect of Plot E shall be submitted in writing to and for approval by the Local Planning Authority.

Prior to the occupation of the Plot E non-residential floorspace, a Commercial Waste Management Plan in respect of Plot E shall be submitted in writing to and for approval by the Local Planning Authority.

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The plans shall demonstrate as necessary:

- Any distances between waste storage areas and collection vehicles further than 10 metres are mitigated by appropriate management measures.
- Installed dropped kerbs relevant to servicing access have gradients no greater than 1:20
- Suitable pest control of waste storage areas.
- Separate commercial and residential waste storage and disposal
- In respect of the non-residential units, arrangements for a scheduled waste collection with a Commercial Waste Contractor
- A cleansing schedule and measures to ensure waste is contained at all times.

The development within Plot E shall be implemented in accordance with the approved Plan and maintained thereafter.

REASON: To protect the amenity of the locality

E3) Drainage – Attenuation Details (LBH Local Lead Flood Authority)

Prior to the commencement of the Plot E development other than demolition, below ground and building core works, full details of the drainage attenuation in respect of Plot E shall be submitted in writing to and for approval by the local Planning Authority.

Attenuation measures shall demonstrate compliance with the relevant London Plan (2016) Standards, in relation to greenfield runoff rate, and the approved details shall then be implemented as approved and maintained thereafter.

REASON: to mitigate flood risk.

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E4) Drainage - Design Implementation, Maintenance Management (LBH Local Lead Flood Authority)

Prior to commencement of the Plot E development other than demolition, below ground and building core works, details of design implementation, maintenance and management of the sustainable drainage scheme in respect of Plot E shall be submitted in writing to and for approval by the Local Planning Authority, those details shall include:-

i) Information about the design storm periods and intensity, discharge rates for both pre and post development, means of access for maintenance, methods used to control surface water discharge from the Plot.
ii) Any works required off site to ensure adequate discharge of surface water without causing flooding.
iii) Floodwater exceedance routes, both on and off site.
iv) Timetable for implementation.
v) A detailed management maintenance plan for the lifetime of the Plot E development, which shall include arrangements for adoption by an appropriate public body or statutory undertaker, management by Residents management company or other arrangements to secure the operation of the drainage scheme throughout the lifetime of the Plot E development.

The scheme shall be implemented, retained, managed and maintained within Plot E in accordance with the approved details.
REASON: To prevent increased risk of flooding to improve water quality and amenity to ensure future maintenance of the surface water drainage system.

E5) BREAAM – Post Occupation Certificate (LBH Carbon Management)

Six calendar months after the first non-residential occupation of the Plot, a BREEAM Post Construction Certificate in respect of the non-residential space within Plot E shall be submitted to the Local Planning Authority. The Certificate shall be issued by the Building Research Establishment (or another independent certification body). The development within Plot E shall maintain the rating in the approved Certificate thereafter unless agreed in writing with the Local Planning Authority.
REASON: In the interest of addressing climate change and to secure sustainable development

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E6) Overheating and Model Report (LBH Carbon Management)

Prior to above ground works within Plot E (excluding demolition and works to construct the building core), an Overheating Model and Report in respect of Plot E shall be submitted in writing to and for approval by the Local Planning Authority. The submission shall assess the overheating risk (using future weather temperature projections), and demonstrate how the risks have been mitigated and removed through design solutions. This assessment will use TM59 (for domestic) or TM52 (for non-domestic). Both models shall be run using the London Weather File TM49.

The submission shall include details of the design measures incorporated within the scheme within Plot E (including details of the feasibility of using external solar shading and passive cooling and ventilation) to ensure adaptation to higher temperatures are addressed, and the units do not overheat. The submission shall include the following:

A. Full listing (based on unit number relating to planning drawings) of units modelled and the overheating risk before measures are installed;

B. The measures installed to reduce overheating risk:

i. the standard and the impact of the solar control glazing;
ii. that all heating pipework is appropriately insulated
iii. that passive cooling and ventilation features have been included
iv. highlight the mitigation strategies to overcome any overheating risk
v. that there is space for pipe work or localised building services and that this is designed in to the building to allow the retrofitting of centralised or localised cooling and ventilation equipment if needed.

The submission shall preclude the use of air conditioning unless exceptional justification is given for design based upon current weather projection (CIBSE DSY 1). The development within Plot E shall be constructed in accordance with the approved submission.

REASON: In the interest of adapting to climate change and to secure sustainable development.

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E7) Biodiversity Plan (LBH Carbon Management)

Prior to the installation of the measures listed in items i to v below within Plot E, details of a Biodiversity Plan in respect of the development within Plot E shall be submitted in writing to and for approval by the Local Planning Authority. The Plan shall detail:

i. Details on the number, and location of the bird brick boxes (or other) - including orientation and links to habitats that would be needed to support the identified bird species;
ii. Details on the bird brick box (or other) design and for what bird species would they serve;
iii. The lighting measures and ongoing management to reduce the impact on recorded bat populations;
iv. The number, and location of the bat brick boxes; and
v. The number, and location of the insect hotels.

The development within Plot E shall be constructed in accordance with the approved Plan and the approved measures incorporated prior to the occupation of the development within Plot E. The approved biodiversity infrastructure should where possible preclude impacts by amenity uses and access should be permitted only for maintenance, repair or escape in an emergency.
REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

E8) Green/living Roof Plan (LBH Carbon Management)

Prior to installation of green/living roofs, a Green/Living Roof Plan in respect of the development within Plot E shall be submitted in writing to and for approval by the Local Planning Authority. The Plan shall include:

- A roof(s) plan identifying where the living roofs will be located;
- Confirmation of the substrates depth ranges;
- Details on the diversity of substrate depths across the roof to provide contours of substrate;
- Details on the diversity of substrate types and sizes;
- Details on bare areas of substrate to allow for self colonisation of local windblown seeds and invertebrates;
- Details on the range of native species of wildflowers and herbs planted to benefit native wildlife precluding a overreliance on sedum;
- Details of the location of log piles / flat stones for invertebrates; and
- Schedule of ongoing maintenance and management

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The measures should be incorporated prior to the occupation of the development within Plot E. The development within Plot E shall be carried out in accordance with the approved Plan and maintained thereafter.
REASON: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall.

E9) Boiler Details (LBH Environmental Health/Carbon Management)

Prior to above ground works within Plot E (excluding demolition and works to construct the building core), details of the boiler facilities and associated infrastructure within the Plot, shall be submitted to and approved in writing by the Local Planning Authority. The details shall include:

a) location of the energy centre;
b) specification of equipment and pipework;
c) details of all the flue arrangements and chimney heights calculations, diameters and locations;
d) confirmation that the boilers to be provided for space heating and domestic hot water shall have dry NOx emissions not exceeding 40 mg/kWh;
e) confirmation that the site wide heating and hot water network has been designed and shall be constructed following the CIBSE / ADE Heat Networks Code of Practice
f) operation/management strategy;
g) the method of how the facility and infrastructure shall be designed to allow for the future connection to any neighbouring heating network (including the proposed connectivity location, space for extra equipment, punch points and large enough route of the link); and
h) the route from the Energy Centre to the red line boundary with installed pipe specification to serve all heat loads.

The development within Plot E shall be constructed in accordance with the approved details and maintained thereafter.
REASON: To protect air quality, ensure future district energy connection and protect the amenity of the locality.

E10) Accessible Parking Demarcated (LBH Transportation)

Prior to the occupation of the Plot E development, all accessible car parking spaces within that Plot shall be marked as such and retained permanently.

REASON: In order to ensure that a reasonable number of parking spaces are located conveniently for use by people with disabilities.

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E11) Cycle Parking (LBH Transportation)

Prior to the occupation of the Plot E development, full details of the long stay cycle parking (including the type, dimensions and method of security and access), in line with the London Cycle Design Standards (LCDS, October 2016) within that Plot shall be submitted in writing to and approved by the Local Planning Authority. Cycle parking within the Plot shall be installed in accordance with the approved details.

REASON: To promote sustainable transport.

E12) Service and Delivery Plan (LBH Transportation)

Part A

Prior to the residential occupation of the Plot E development, a full Residential Service and Delivery Plan (SDP) in respect of the development within Plot E shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Plot E shall be undertaken in accordance with the approved plan.

Part B

Prior to the occupation of the non-residential floorspace within Plot E, a full Service and Delivery Plan (SDP) for the non-residential uses within Plot E shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Plot E shall be undertaken in accordance with the approved plan.

REASON: To reduce traffic and congestion on the transportation and highways network.

E13) Noise Level Testing Details (LBH Environmental Health – Noise)

Prior to the occupation of the Plot E development, testing details (the scope of which shall be agreed with the Local Planning Authority prior to submission) confirming the noise levels cited in Site Wide condition 12 above have been met shall be submitted in writing to and for approval by the Local Planning Authority. The approved noise level shall be maintained within Plot E thereafter.

REASON: To protect the amenity of occupiers.

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E14) Sound Insulation Between Residential and Commercial Properties (LBH Environmental Health – Noise)

Prior to the commencement of the building works for the fit-out of the commercial units within Plot E, details of a Sound Insulation Scheme to be installed between the commercial premises and residential premises within Plot E shall be submitted in writing to and for approval by the Local Planning Authority. The scheme shall be submitted following consultation with the Council's Environmental Health Officer (Noise). The scheme shall be installed as approved prior to any commercial occupation of Plot E and shall be maintained thereafter.

REASON: to protect the amenity of the locality.

E15) Secure by Design Accreditation (Metropolitan Police)

Part A

Prior to carrying out above ground works within Plot E (excluding demolition and works to construct the building core) details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that the Plot (and building(s) contained therein) has incorporated the principles and practices of Secured by Design where these can be practically achieved. Where the principles cannot be achieved, then justification for this will be required. The development within Plot E shall be implemented in accordance with the approved details.

Part B
Prior to first occupation of each building or part of a building or use within Plot E, details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that such Plot (and building(s) contained therein) has delivered the principles and practices of Secured by Design, and as agreed by the Local Planning Authority in the discharge of Part A.

REASON: To ensure safe and secure development and reduce crime.

E16) Site Levels (LBH Development Management)

No development shall proceed within Plot E (excluding above ground demolition) until details of all existing and proposed levels on the Plot in relation to the adjoining properties have been submitted to and approved by the Local Planning Authority. The Plot E development shall be built in accordance with the approved details.

REASON: In order to ensure that any works in conjunction with the permission hereby granted respects the height of adjacent properties through suitable levels on the site.

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E17) Open Space Management & Maintenance Plan (LBH Development Management)

Prior to the occupation of the Plot E development, an Open Space Management & Maintenance Plan in respect of the development within Plot E shall be submitted to and approved in writing by the Local Planning Authority The Plan shall include details of the following:

i) Long-term management and maintenance responsibilities for all private, communal play spaces/amenity spaces and all publicly accessible open spaces
ii) Soft landscaping management and maintenance arrangements to ensure positive contribution to biodiversity

Spaces within Plot E shall be managed and maintained in accordance with the approved Plan and maintained thereafter.

REASON: to ensure high quality open space

E18) Child Playspace Strategy (LBH Development Management)

Prior to the residential occupation of Plot E, a Child Play Space Strategy in respect of the development within Plot E shall be submitted in writing to and for approval by the Local Planning Authority. The Strategy shall provide detail of child play spaces in accordance with the London Plan (2016) and the London Plan SPG Play and Informal Recreation (2012). The development within Plot E shall be implemented in accordance with the Strategy and maintained thereafter.

REASON: to ensure high quality development

E19) Monitoring and Maintenance Plan – Contamination (Environment Agency)

The Plot E development hereby permitted may not commence other than for investigative worksBB until a monitoring and maintenance plan in respect of contamination within Plot E, including a timetable of monitoring and submission of reports to the Local Planning Authority, has been submitted to, and approved in writing by, the Local Planning Authority. Reports as specified in the approved plan, including details of any necessary contingency action arising from the monitoring, shall be submitted to, and approved in writing by, the Local Planning Authority.

REASON: To ensure that the site does not pose any further risk to human health or the water environment by managing any ongoing contamination issues and completing all necessary long-term remediation measures. This is in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

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E20) Contamination Not Previously Identified (Environment Agency)

If during development, contamination not previously identified is found to be present at Plot E then no further development in respect of that Plot (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved within Plot E.

REASONS: To ensure that the development is not contributing to, put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution from previously unidentified contamination sources at the development site in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

E21) Written Consent for Piling or Other Intrusive Ground Works (Environment Agency)

Piling or other intrusive ground works (investigation boreholes, tunnel shafts, ground source heating and cooling systems) using penetrative methods which breach the base of the London Clay or where the London Clay is absent shall not be carried out other than with the written consent of the local planning authority. The development within Plot E shall be carried out in accordance with the approved details.

REASON: To ensure that the proposed piling activities through potentially contaminated land is not contributing to, put at unacceptable risk from, or adversely affected by unacceptable levels of water pollution caused by mobilised contaminants in line with paragraph 170 of the National Planning Policy Framework and the Environment Agency's approach to groundwater protection. To prevent deterioration of groundwater within the principal chalk aquifer.

E22) Method of Piling (LBH Environmental Health)

(1) No piling; or (2) other intrusive ground works which breach the base of the London Clay or occur in areas where the London Clay is absent within Plot E shall take place until a Piling Impact Study has been undertaken in respect of Plot E. The Piling Impact Study shall include the method of piling foundations and shall be submitted to and approved in writing by the Local Planning Authority. Piling or any other foundation design using penetrative methods shall not be permitted within Plot E except for those parts of Plot E where it has been demonstrated that there is no resultant unacceptable risk to ground water.

REASON: To prevent the contamination of the underlying groundwater aquifer

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E23) Written Scheme of Investigation (WSI) – Historic England (GLAAS)

No demolition or development (apart from demolition to slab level) shall take place within Plot E until a stage 1 written scheme of investigation (WSI) in respect of Plot E has been submitted to and approved by the local planning authority in writing. For land that is included within the WSI, no demolition or development (apart from demolition to slab level) shall take place within Plot E other than in accordance with the agreed WSI, and the programme and methodology of site evaluation and the nomination of a competent person(s) or organisation to undertake the agreed works.

If heritage assets of archaeological interest are identified by stage 1 then for those parts of the site which have archaeological interest a stage 2 WSI shall be submitted to and approved by the local planning authority in writing. For land that is included within the stage 2 WSI, no demolition/development (apart from demolition to slab level) shall take place within Plot E other than in accordance with the agreed stage 2 WSI which shall include:

A. The statement of significance and research objectives, the programme and methodology of site investigation and recording and the nomination of a competent person(s) or organisation to undertake the agreed works

B. The programme for post-investigation assessment and subsequent analysis, publication & dissemination and deposition of resulting material. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme set out in the stage 2 WSI.

REASON: To protect the Historic Environment

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E24) Contaminated Land – Part 1 (LBH Environmental Health)

Prior to the commencement of the development on Plot E (other than for investigative work):

a) Using the information obtained from the previous assessments, an additional site investigation, sampling and analysis shall be undertaken at the Plot as appropriate. The investigation must be comprehensive enough to enable:-

i) A risk assessment to be undertaken,
ii) Refinement of the Conceptual Model, and
ii) The development of a Method Statement detailing the remediation requirements.

The risk assessment and refined Conceptual Model shall be submitted, along with the site investigation report, to the Local Planning Authority.

b) If the risk assessment and refined Conceptual Model indicate any risk of harm, a Method Statement detailing the remediation requirements in respect of the Plot, using the information obtained from the site investigation, and also detailing any post remedial monitoring shall be submitted to, and approved in writing by, the Local Planning Authority prior to that remediation being carried out on the Plot.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

E25) Contaminated Land – Part 2 (LBH Environmental Health)

Where the contaminated land condition above demonstrates that remediation of contamination on the Plot is required, completion of the remediation detailed in the Method Statement shall be carried out and a report that provides verification that the required works have been carried out, shall be submitted to, and approved in writing by the Local Planning Authority before the development is occupied within Plot E.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

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E26) Development Near Subsurface Potable Water Infrastructure (Thames Water)

No construction shall take place within 5m of the water main unless otherwise agreed in writing with the Local Planning Authority in consultation with Thames Water. Information detailing how the developer intends to divert the asset / align the Plot E development, so as to prevent the potential for damage to subsurface potable water infrastructure, must be submitted to and approved in writing by the local planning authority in consultation with Thames Water. Any construction must be undertaken in accordance with the terms of the approved information. Unrestricted access must be available at all times for the maintenance and repair of the asset during and after the construction works.

REASON: The proposed works will be in close proximity to underground strategic water main, utility infrastructure. The works have the potential to impact on local underground water utility infrastructure.

E27) Central Satellite Dish/Receiving System (LBH Development Management)

Prior to the residential occupation of the Plot E development, details of a Central Satellite Dish/Receiving System in respect of Plot E shall be submitted in writing to and for approval by the Local Planning Authority. The System shall be implemented in accordance with approved details and maintained thereafter.

REASON: To protect the amenity of the locality.

E28) Satellite Dish or Television Antenna (LBH Development Management)

The placement of any satellite dish or television antenna on any external surface of any building in the Plot is not permitted, excepting the approved central dish/receiving system noted in the condition above, unless agreed in writing with the Local Planning Authority.

REASON: To protect the amenity of the locality.

E29) Demolition/Construction Environmental Management Plans

Part A

Demolition works shall not commence within Plot E until a Demolition Environmental Management Plan (DEMP) in respect of Plot E has been submitted to and approved in writing by the local planning authority.

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Part B

Development shall not commence within Plot E (other than demolition) until a Construction Environmental Management Plan (CEMP) in respect of Plot E has been submitted to and approved in writing by the local planning authority.

The following applies to both Parts A and B above:

a) The DEMP/CEMP shall include a Construction Logistics Plan (CLP) and Air Quality and Dust Management Plan (AQDMP) in respect of Plot E.

b) The DEMP/CEMP shall provide details of how demolition/construction works in respect of Plot E are to be undertaken respectively and shall include:
   i. A construction method statement which identifies the stages and details how works will be undertaken;
   ii. Details of working hours, which unless otherwise agreed with the Local Planning Authority shall be limited to 08.00 to 18.00 Monday to Friday and 08.00 to 13.00 on Saturdays;
   iii. Details of plant and machinery to be used during demolition/construction works;
   iv. Details of an Unexploded Ordnance Survey;
   v. Details of the waste management strategy;
   vi. Details of community engagement arrangements;
   vii. Details of any acoustic hoarding;
   viii. A temporary drainage strategy and performance specification to control surface water runoff and Pollution Prevention Plan (in accordance with Environment Agency guidance);
   ix. Details of external lighting; and,
   x. Details of any other standard environmental management and control measures to be implemented.

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c) The CLP will be in accordance with Transport for London's Construction Logistics Plan Guidance (July 2017) and shall provide details on:

i. Monitoring and joint working arrangements, where appropriate;
ii. Site access and car parking arrangements;
iii. Delivery booking systems;
iv. Agreed routes to/from the Plot;
v. Timing of deliveries to and removals from the Plot (to avoid peak times, as agreed with Highways Authority, 07.00 to 9.00 and 16.00 to 18.00, where possible); and
vi. Travel plans for staff/personnel involved in demolition/construction works to detail the measures to encourage sustainable travel to the Plot during the demolition/construction phase; and
vii. Joint arrangements with neighbouring developers for staff parking, Lorry Parking and consolidation of facilities such as concrete batching.

d) The AQDMP will be in accordance with the Greater London Authority SPG Dust and Emissions Control (2014) and shall include:

i. Mitigation measures to manage and minimise demolition/construction dust emissions during works;
ii. Details confirming the Plot has been registered at http://nrmm.london;
iii. Evidence of Non-Road Mobile Machinery (NRMM) and plant registration shall be available on site in the event of Local Authority Inspection;
iv. An inventory of NRMM currently on site (machinery should be regularly serviced and service logs kept on site, which includes proof of emission limits for equipment for inspection);
v. A Dust Risk Assessment for the works; and
vi. Lorry Parking, in joint arrangement where appropriate.

The development on Plot E shall be carried out in accordance with the approved details.

Additionally, the site or Contractor Company must be registered with the Considerate Constructors Scheme. Proof of registration must be sent to the Local Planning Authority prior to any works being carried out.

REASON: To safeguard residential amenity, reduce congestion and mitigate obstruction to the flow of traffic, protect air quality and the amenity of the locality.

E30) Details of Roof Top PV Panels

Prior to the occupation of Plot E for residential purposes, details of the layout and specification of the PV solar panel installation in respect of Plot E shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot E shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure sustainable development and mitigate the impacts of climate change.

E31) Legal Agreement – Interested Parties (LBH Development Management)

Unless the local planning authority shall have first agreed in writing that it is not necessary to bind the particular interest or interests in question, no works shall be carried out under this permission on that land shown shaded yellow on plan TOT-PLAN-PLAP-06-A-P01 Rev P01 unless and until all legal and equitable interests in that land have been bound by the provisions of the section 106 agreement of even date with this permission

REASON: to secure a legal agreement with all those with an interest in the land.

E32) Installation of Roof Top Structures (LBH Development Management)

Prior to the installation of any access ladders or building cleaning equipment at the roof level of Plot E, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot E shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance.

E33) Updated Ecological Survey (LBH Nature Conservation)

Prior to the demolition of 1 Ashley Road, an updated Ecological Appraisal including a daytime bat survey shall be submitted in writing to and for approval by the Local Planning Authority. The Appraisal shall propose mitigation if required. The development shall be implemented in accordance with approved details.

REASON: to protect biodiversity.

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E34) Existing Business Occupier Retention (LBH Development Management)

Prior to the commencement of the Plot E development, a description of the operation of any existing business occupiers on the Plot shall be submitted to the Local Planning Authority. Details shall also be submitted setting out a description of discussions that have been held with any existing occupiers to determine if they would express an interest to take up floorspace within the Proposed Development.

In the event that as part of these discussions any existing business occupiers express an interest in taking up floorspace within the Proposed Development, the submitted details shall set out the opportunities for the existing occupiers to take up floorspace within the Proposed Development.

REASON: To provide the opportunity for existing businesses to be retained on the Site.

E35) Opaque Glazing to non-residential units

Prior to the installation of any opaque glazing on the ground floor non-residential units of Plot E, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot E shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

E36) Cooling Demand

Prior to the occupation of the non-residential floorspace within Plot E, details of measures to be undertaken to minimise the non-domestic cooling demand shall be submitted in writing to and for approval by the Local Planning Authority. The measures shall be incorporated in accordance with the approved details.

REASON: In the interest of adapting to climate change and to secure sustainable development.

E37) Overheating

Prior to the residential occupation of the Plot E development, a Building User Guide for new residential occupants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide will advise residents how to operate their property during a heatwave, setting out a cooling hierarchy in accordance with London Plan (2016) Policy 5.9 with passive measures being considered ahead of cooling systems. The Building User Guide will be issued to residential occupants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

E38) Heat Network

Prior to the occupation of the non-residential floorspace within Plot E, a Building User Guide for new non-residential tenants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide shall explain that valved connections have been made available to each tenant, for the purpose of their primary heating and hot water generation. The Building User Guide will be issued to non-residential tenants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

E39) CO2

Prior to the occupation of each non-residential unit within Plot E, details demonstrating that a Seasonal Energy Efficiency Ratio (SEER) of 7.0 can be achieved shall be submitted in writing to and for approval by the Local Planning Authority. The development shall be occupied in accordance with the approved details.

REASON: In the interest of adapting to climate change and to secure sustainable development.

F. CONDITIONS RELATING TO THE PAVILION (PLOT F)

F1) Materials Samples (LBH Development Management)

Prior to the installation of materials on the external surfaces of Plot F, samples of materials to be used for the external surfaces of the building hereby approved within Plot F, shall be submitted in writing to and for approval by the Local Planning Authority. Samples shall include type and shade of cladding, window frames and balcony frames, sample panels or brick types and a roofing material sample combined with a schedule of the exact product references. The development shall be constructed of the approved materials and maintained thereafter.

REASON: In order for the Local Planning Authority to retain control over the exact materials to be used for the proposed development and to assess the suitability of the samples submitted in the interests of visual amenity.

F2) Waste Management Plan (LBH Waste Management)

Prior to the occupation of Plot F, a Commercial Waste Management Plan in respect of Plot F shall be submitted in writing to and for approval by the Local Planning Authority.

The plans shall demonstrate as necessary:

- Any distances between waste storage areas and collection vehicles further than 10 metres are mitigated by appropriate management measures.
- Installed dropped kerbs relevant to servicing access have gradients no greater than 1:20
- Suitable pest control of waste storage areas.
- Separate commercial and residential waste storage and disposal
- In respect of the non-residential units, arrangements for a scheduled waste collection with a Commercial Waste Contractor
- A cleansing schedule and measures to ensure waste is contained at all times.

The development within Plot F shall be implemented in accordance with the approved Plan and maintained thereafter.

REASON: To protect the amenity of the locality

F3) Drainage – Attenuation Details (LBH Local Lead Flood Authority)

Prior to the commencement of the Plot F development other than demolition, below ground and building core works, full details of the drainage attenuation in respect of Plot F shall be submitted in writing to and for approval by the local Planning Authority.

Attenuation measures shall demonstrate compliance with the relevant London Plan (2016) Standards, in relation to greenfield runoff rate, and the approved details shall then be implemented as approved and maintained thereafter.

REASON: to mitigate flood risk.

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F4) Drainage - Design Implementation, Maintenance Management (LBH Local Lead Flood Authority)

Prior to commencement of the Plot F development other than demolition, below ground and building core works, details of design implementation, maintenance and management of the sustainable drainage scheme in respect of Plot F shall be submitted in writing to and for approval by the Local Planning Authority, those details shall include:-

i) Information about the design storm periods and intensity, discharge rates for both pre and post development, means of access for maintenance, methods used to control surface water discharge from the Plot.
ii) Any works required off site to ensure adequate discharge of surface water without causing flooding.
iii) Floodwater exceedance routes, both on and off site.
iv) Timetable for implementation.
v) A detailed management maintenance plan for the lifetime of the Plot F development, which shall include arrangements for adoption by an appropriate public body or statutory undertaker, management by Residents management company or other arrangements to secure the operation of the drainage scheme throughout the lifetime of the Plot A development.

The scheme shall be implemented, retained, managed and maintained within Plot F in accordance with the approved details.

REASON: To prevent increased risk of flooding to improve water quality and amenity to ensure future maintenance of the surface water drainage system.

F5) BREAAM – Post Occupation Certificate (LBH Carbon Management)

Six calendar months after the first occupation of the Plot, a BREEAM Post Construction Certificate in respect of the non-residential space within Plot F shall be submitted to the Local Planning Authority. The Certificate shall be issued by the Building Research Establishment (or another independent certification body). The development within Plot F shall maintain the rating in the approved Certificate thereafter unless agreed in writing with the Local Planning Authority.

REASON: In the interest of addressing climate change and to secure sustainable development

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F6) Service and Delivery Plan (LBH Transportation)

Prior to the occupation of Plot F, a full Service and Delivery Plan (SDP) for the non-residential uses within Plot F shall be submitted in writing to and for approval by the Local Planning Authority. The Plan should provide details on how servicing and deliveries will take place. The plan shall demonstrate how deliveries and servicing are coordinated to avoid the AM and PM peak periods. Servicing and deliveries within Plot A shall be undertaken in accordance with the approved plan.

REASON: To reduce traffic and congestion on the transportation and highways network.

F7) Secure by Design Accreditation (Metropolitan Police)

Part A

Prior to carrying out above ground works within Plot F (excluding demolition and works to construct the building core) details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that the Plot (and building(s) contained therein) has incorporated the principles and practices of Secured by Design where these can be practically achieved. Where the principles cannot be achieved, then justification for this will be required. The development within Plot F shall be implemented in accordance with the approved details.

Part B

Prior to first occupation of Plot F, details shall be submitted to, and approved in writing by the Local Planning Authority to demonstrate that such Plot (and building(s) contained therein) has delivered the principles and practices of Secured by Design, and as agreed by the Local Planning Authority in the discharge of Part A.

REASON: To ensure safe and secure development and reduce crime.

F8) Site Levels (LBH Development Management)

No development shall proceed within Plot F (excluding above ground demolition) until details of all existing and proposed levels on the Plot in relation to the adjoining properties have been submitted to and approved by the Local Planning Authority. The Plot F development shall be built in accordance with the approved details.

REASON: In order to ensure that any works in conjunction with the permission hereby granted respects the height of adjacent properties through suitable levels on the site.

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F9) Open Space Management & Maintenance Plan (LBH Development Management)
Prior to the occupation of the Plot F development, an Open Space Management & Maintenance Plan in respect of the development within Plot F shall be submitted to and approved in writing by the Local Planning Authority The Plan shall include details of the following:

i) Long-term management and maintenance responsibilities for all private, communal play spaces/amenity spaces and all publicly accessible open spaces
ii) Soft landscaping management and maintenance arrangements to ensure positive contribution to biodiversity

Spaces within Plot F shall be managed and maintained in accordance with the approved Plan and maintained thereafter.

REASON: to ensure high quality open space

F10) Monitoring and Maintenance Plan – Contamination (Environment Agency)

The Plot F development hereby permitted may not commence other than for investigative work until a monitoring and maintenance plan in respect of contamination within Plot F, including a timetable of monitoring and submission of reports to the Local Planning Authority, has been submitted to, and approved in writing by, the Local Planning Authority. Reports as specified in the approved plan, including details of any necessary contingency action arising from the monitoring, shall be submitted to, and approved in writing by, the Local Planning Authority.

REASON: To ensure that the site does not pose any further risk to human health or the water environment by managing any ongoing contamination issues and completing all necessary long-term remediation measures. This is in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

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F11) Contamination Not Previously Identified (Environment Agency)

If during development, contamination not previously identified is found to be present at Plot F then no further development in respect of that Plot (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved within Plot F.

REASON: To ensure that the development is not contributing to, put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution from previously unidentified contamination sources at the development site in line with paragraph 170 of the National Planning Policy Framework. To prevent deterioration of groundwater within the principal chalk aquifer.

F12) Written Consent for Piling or Other Intrusive Ground Works (Environment Agency)

Piling or other intrusive ground works (investigation boreholes, tunnel shafts, ground source heating and cooling systems) using penetrative methods which breach the base of the London Clay or where the London Clay is absent shall not be carried out other than with the written consent of the local planning authority. The development within Plot F shall be carried out in accordance with the approved details.

REASON: To ensure that the proposed piling activities through potentially contaminated land is not contributing to, put at unacceptable risk from, or adversely affected by unacceptable levels of water pollution caused by mobilised contaminants in line with paragraph 170 of the National Planning Policy Framework and the Environment Agency's approach to groundwater protection. To prevent deterioration of groundwater within the principal chalk aquifer.

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F13) Method of Piling (LBH Environmental Health)

(1) No piling; or (2) other intrusive ground works which breach the base of the London Clay or occur in areas where the London Clay is absent within Plot F shall take place until a Piling Impact Study has been undertaken in respect of Plot F. The Piling Impact Study shall include the method of piling foundations and shall be submitted to and approved in writing by the Local Planning Authority. Piling or any other foundation design using penetrative methods shall not be permitted within Plot F except for those parts of Plot F where it has been demonstrated that there is no resultant unacceptable risk to ground water.

REASON: To prevent the contamination of the underlying groundwater aquifer

F14) Written Scheme of Investigation (WSI) – Historic England (GLAAS)

No demolition or development (apart from demolition to slab level) shall take place within Plot F until a stage 1 written scheme of investigation (WSI) in respect of Plot F has been submitted to and approved by the local planning authority in writing. For land that is included within the WSI, no demolition or development (apart from demolition to slab level) shall take place within Plot F other than in accordance with the agreed WSI, and the programme and methodology of site evaluation and the nomination of a competent person(s) or organisation to undertake the agreed works.

If heritage assets of archaeological interest are identified by stage 1 then for those parts of the site which have archaeological interest a stage 2 WSI shall be submitted to and approved by the local planning authority in writing. For land that is included within the stage 2 WSI, no demolition/development (apart from demolition to slab level) shall take place within Plot F other than in accordance with the agreed stage 2 WSI which shall include:

A. The statement of significance and research objectives, the programme and methodology of site investigation and recording and the nomination of a competent person(s) or organisation to undertake the agreed works

B. The programme for post-investigation assessment and subsequent analysis, publication & dissemination and deposition of resulting material. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme set out in the stage 2 WSI.

REASON: To protect the Historic Environment

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F15) Contaminated Land – Part 1 (LBH Environmental Health)

Prior to the commencement of the development on Plot F (other than for investigative work):

a) Using the information obtained from the previous assessments, an additional site investigation, sampling and analysis shall be undertaken at the Plot as appropriate. The investigation must be comprehensive enough to enable:-

i) A risk assessment to be undertaken,
ii) Refinement of the Conceptual Model, and
ii) The development of a Method Statement detailing the remediation requirements.

The risk assessment and refined Conceptual Model shall be submitted, along with the site investigation report, to the Local Planning Authority.

b) If the risk assessment and refined Conceptual Model indicate any risk of harm, a Method Statement detailing the remediation requirements in respect of the Plot, using the information obtained from the site investigation, and also detailing any post remedial monitoring shall be submitted to, and approved in writing by, the Local Planning Authority prior to that remediation being carried out on the Plot.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

F16) Contaminated Land – Part 2 (LBH Environmental Health)

Where the contaminated land condition above demonstrates that remediation of contamination on the Plot is required, completion of the remediation detailed in the Method Statement shall be carried out and a report that provides verification that the required works have been carried out, shall be submitted to, and approved in writing by the Local Planning Authority before the development is occupied within Plot F.

REASON: To ensure the development can be implemented and occupied with adequate regard for environmental and public safety.

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F17) Development Near Subsurface Potable Water Infrastructure (Thames Water)

No construction shall take place within 5m of the water main unless otherwise agreed in writing with the Local Planning Authority in consultation with Thames Water. Information detailing how the developer intends to divert the asset / align the Plot F development, so as to prevent the potential for damage to subsurface potable water infrastructure, must be submitted to and approved in writing by the local planning authority in consultation with Thames Water. Any construction must be undertaken in accordance with the terms of the approved information. Unrestricted access must be available at all times for the maintenance and repair of the asset during and after the construction works.

REASON: The proposed works will be in close proximity to underground strategic water main, utility infrastructure. The works have the potential to impact on local underground water utility infrastructure.

F18) Satellite Dish or Television Antenna (LBH Development Management)

The placement of any satellite dish or television antenna on any external surface of the building within the Plot is not permitted unless agreed in writing with the Local Planning Authority.

REASON: To protect the amenity of the locality.

F19) Demolition/Construction Environmental Management Plans

Part A

Demolition works shall not commence within Plot F until a Demolition Environmental Management Plan (DEMP) in respect of Plot F has been submitted to and approved in writing by the local planning authority.

Part B

Development shall not commence within Plot F (other than demolition) until a Construction Environmental Management Plan (CEMP) in respect of Plot F has been submitted to and approved in writing by the local planning authority.

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The following applies to both Parts A and B above:

a) The DEMP/CEMP shall include a Construction Logistics Plan (CLP) and Air Quality and Dust Management Plan (AQDMP) in respect of Plot F.

b) The DEMP/CEMP shall provide details of how demolition/construction works in respect of Plot F are to be undertaken respectively and shall include:

i. A construction method statement which identifies the stages and details how works will be undertaken;
ii. Details of working hours, which unless otherwise agreed with the Local Planning Authority shall be limited to 08.00 to 18.00 Monday to Friday and 08.00 to 13.00 on Saturdays;
iii. Details of plant and machinery to be used during demolition/construction works;
iv. Details of an Unexploded Ordnance Survey;
v. Details of the waste management strategy;
vi. Details of community engagement arrangements;
vii. Details of any acoustic hoarding;
viii. A temporary drainage strategy and performance specification to control surface water runoff and Pollution Prevention Plan (in accordance with Environment Agency guidance);
ix. Details of external lighting; and,
x. Details of any other standard environmental management and control measures to be implemented.

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c) The CLP will be in accordance with Transport for London's Construction Logistics Plan Guidance (July 2017) and shall provide details on:

i. Monitoring and joint working arrangements, where appropriate;
ii. Site access and car parking arrangements;
iii. Delivery booking systems;
iv. Agreed routes to/from the Plot;
v. Timing of deliveries to and removals from the Plot (to avoid peak times, as agreed with Highways Authority, 07.00 to 9.00 and 16.00 to 18.00, where possible); and
vi. Travel plans for staff/personnel involved in demolition/construction works to detail the measures to encourage sustainable travel to the Plot during the demolition/construction phase; and
vii. Joint arrangements with neighbouring developers for staff parking, Lorry Parking and consolidation of facilities such as concrete batching.

d) The AQDMP will be in accordance with the Greater London Authority SPG Dust and Emissions Control (2014) and shall include:

i. Mitigation measures to manage and minimise demolition/construction dust emissions during works;
ii. Details confirming the Plot has been registered at http://nrmm.london;
iii. Evidence of Non-Road Mobile Machinery (NRMM) and plant registration shall be available on site in the event of Local Authority Inspection;
iv. An inventory of NRMM currently on site (machinery should be regularly serviced and service logs kept on site, which includes proof of emission limits for equipment for inspection);
v. A Dust Risk Assessment for the works; and
vi. Lorry Parking, in joint arrangement where appropriate.

The development on Plot F shall be carried out in accordance with the approved details.

Additionally, the site or Contractor Company must be registered with the Considerate Constructors Scheme. Proof of registration must be sent to the Local Planning Authority prior to any works being carried out.

REASON: To safeguard residential amenity, reduce congestion and mitigate obstruction to the flow of traffic, protect air quality and the amenity of the locality.

F20) Details of Roof Top PV Panels

Prior to the occupation of Plot F, details of the layout and specification of the PV solar panel installation in respect of Plot F shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot F shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure sustainable development and mitigate the impacts of climate change.

F21) Installation of Roof Top Structures (LBH Development Management)

Prior to the installation of any access ladders or building cleaning equipment at the roof level of Plot F, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot F shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

F22) Pavilion Signage Strategy (LBH Development Management)

Prior to the occupation of Plot F, details of a signage strategy for the Pavilion shall be submitted in writing to and for approval by the Local Planning Authority. All signage to be fixed to the Pavilion shall be in accordance with the approved signage strategy.

REASON: To ensure that the building has a satisfactory appearance.

F23) Opaque Glazing to Non-Residential Units

Prior to the installation of any opaque glazing on the ground floor non-residential units of Plot F, details shall be submitted in writing to and for approval by the Local Planning Authority. The installation within Plot F shall be constructed in accordance with the approved details and maintained thereafter.

REASON: To ensure that the building has a satisfactory appearance

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F24) Heat Network (Great London Authority Energy)

Prior to the occupation of the non-residential floorspace within Plot F, a Building User Guide for new non-residential tenants shall be submitted in writing to and for approval by the Local Planning Authority. The Building User Guide shall explain that valved connections have been made available to each tenant, for the purpose of their primary heating and hot water generation. The Building User Guide will be issued to non-residential tenants upon first occupation.

REASON: In the interest of adapting to climate change and to secure sustainable development.

F25) CO2 (Great London Authority Energy)

Prior to the occupation of each non-residential unit within Plot F, details demonstrating that a Seasonal Energy Efficiency Ratio (SEER) of 7.0 can be achieved shall be submitted in writing to and for approval by the Local Planning Authority. The development shall be occupied in accordance with the approved details.

REASON: In the interest of adapting to climate change and to secure sustainable development.

INFORMATIVES

1) Working With the Applicant (LBH Development Management)

INFORMATIVE: In dealing with this application, the London Borough of Haringey has implemented the requirements of the National Planning Policy Framework and of the Town and Country Planning (Development Management Procedure) (England) Order 2015 to foster the delivery of sustainable development in a positive and proactive manner.

2) Community Infrastructure Levy (LBH Development Management)

INFORMATIVE: The Community Infrastructure Levy will be collected by Haringey after/should the scheme is/be implemented and could be subject to surcharges for failure to assume liability, for failure to submit a commencement notice and/or for late payment, and subject to indexation in line with the construction costs index.

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3) Hours of Construction Work (LBH Development Management)

INFORMATIVE: The applicant is advised that under the Control of Pollution Act 1974, construction work which will be audible at the site boundary will be restricted to the following hours:

- 8.00am - 6.00pm Monday to Friday
- 8.00am - 1.00pm Saturday
- and not at all on Sundays and Bank Holidays

4) Party Wall Act (LBH Development Management)

INFORMATIVE: Party Wall Act: The applicant's attention is drawn to the Party Wall Act 1996 which sets out requirements for notice to be given to relevant adjoining owners of intended works on a shared wall, on a boundary or if excavations are to be carried out near a neighbouring building.

5) Development Numbering (LBH Land Charges)

INFORMATIVE: The new development will require numbering. The applicant should contact the Local Land Charges at least six weeks before the development is occupied (tel. 020 8489 5573) to arrange for the allocation of a suitable address.

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6) Site Constraints (Environment Agency)

INFORMATIVE: The EA have no issues on flood risk grounds but would refer the applicant to our Flood Risk Standing Advice (FRSA).

The previous use of the proposed development site as a landfill presents a high risk of contamination that could be mobilised during construction to pollute controlled waters. Controlled waters are considered to be particularly sensitive in this location because the proposed development site is;

- Sited on the regionally important principal chalk aquifer and the Thanet Sands deposit which are considered to be in continuity at this site.
- Within a source protection zone 2 for a public drinking water supply abstraction.

The Environmental Statement and associated Non-Technical Summary Dated July 2018 submitted in support of this planning application provides the EA with confidence that it will be possible to suitably manage the risks posed to controlled waters by this development. However, further detailed information will be required before built development is undertaken. It is our opinion that it would place an unreasonable burden on the developer to ask for more detailed information prior to the granting of planning permission but respect that this is a decision for the Local Planning Authority. In light of the above, the proposed development will be acceptable if the planning conditions listed above are invoked and a remediation strategy carried out by a competent person in line with paragraph 180 of the National Planning Policy Framework.

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7) Advice to Applicant on Model Procedures and Good Practice (Environment Agency)

INFORMATIVE: EA recommends that developers should:

- Follow the risk management framework provided in CLR11, Model Procedures for the Management of Land Contamination, when dealing with land affected by contamination.
- Refer to the Environment Agency Guiding principles for land contamination for the type of information that we required in order to assess risks to controlled waters from the site. The Local Authority can advise on risk to other receptors, such as human health.

- Consider using the National Quality Mark Scheme for Land Contamination Management which involves the use of competent persons to ensure that land contamination risks are appropriately managed.

- Refer to the contaminated land pages on GOV.UK for more information.

A Detailed Quantitative Risk Assessment (DQRA) for the principal chalk aquifer using the results of the site investigations with consideration of the hydrogeology of the site and the degree of any existing groundwater and surface water pollution should be carried out. This increased provision of information by the applicant reflects the potentially greater risk to the water environment. We feel that a DQRA for environmental health purposes should be sufficient to characterise near surface deposits.

In the absence of any applicable on-site data, a range of values should be used to calculate the sensitivity of the input parameter on the outcome of the risk assessment. Where groundwater has been impacted by contamination on site, the default compliance point for Principal and Secondary aquifers is 50m. Following the DQRA, a Remediation Options Appraisal to determine the Remediation Strategy in accordance with CRL11. The remediation strategy should address the procedure for dealing with waste arising from piling activities in the historic landfill and appropriate materials management plan for reuse of suitable materials onsite.

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The verification plan should include proposals for a groundwater-monitoring programme to encompass regular monitoring for a period before, during and after ground works. E.g. monthly monitoring before, during and for at least the first quarter after completion of ground works, and then quarterly for the remaining 9-month period. Where SUDs are proposed; infiltration SUDs should not be located in unsuitable and unstable ground conditions such as land affected by contamination or solution features. As the site is a former landfill it may not be a practical options to use infiltration techniques for dealing with surface water and appropriate connections to the public sewer are expected. Where infiltration SuDS are to be used for surface run-off from roads, car parking and public or amenity areas, they should have a suitable series of treatment steps to prevent the pollution of groundwater.
For the immediate drainage catchment areas used for handling and storage of chemicals and fuel, handling and storage of waste and lorry, bus and coach parking or turning areas, infiltration SuDS are not permitted without an environmental permit. Further advice is available in the updated CIRIA SUDs manual.
http://www.ciria.org/Resources/Free_publications/SuDS_manual_C753.aspx

8) Waste on Site and Reuse of Materials (Environment Agency)

INFORMATIVE: The CLAIRE Definition of Waste: Development Industry Code of Practice provides operators with a framework for determining whether or not excavated material arising from site during remediation and/or land development works are waste or have ceased to be waste. Under the Code of Practice, excavated materials that are recovered via a treatment operation can be re-used on-site providing they are treated to a standard such that they fit for purpose and unlikely to cause pollution treated materials can be transferred between sites as part of a hub and cluster project. Some naturally occurring clean material can be reused directly onsite.

It will not be acceptable to reuse historic landfill material on site as this will remain waste and will need to be disposed in accordance with the relevant protocols. Developers should ensure that all contaminated materials are adequately characterised both chemically and physically, and that the permitting status of any proposed on site operations are clear. If in doubt, the Environment Agency should be contacted for advice at an early stage to avoid any delays.

The Environment Agency recommends that developers should refer to: the position statement on the Definition of Waste: Development Industry Code of Practice and the Environmental regulations page on GOV.UK.

9) Advice to applicant on Review of Further Documents (Environment Agency)

INFORMATIVE: If you would like EA to review a technical report or document, outside of a statutory consultation, and/or meet to discuss EA position, this will be chargeable in line with EA planning advice service.

If you wish to request a meeting, or document review, please contact EA team email address at HNLsustainableplaces@environment-agency.gov.uk
Further information on our charged planning advice service is available at:

https://www.gov.uk/government/publications/planning-advice-environment-agency-standard-terms-and-conditions
Decision notice: EA records the outcome of planning applications and request that the decision notice is sent to hnlsustainableplaces@environment-agency.gov.uk

10) Suitably Qualified Professional – WSI (Historic England – GLAAS)

INFORMATIVE: Written schemes of investigation will need to be prepared and implemented by a suitably qualified professionally accredited archaeological practice in accordance with Historic England's Guidelines for Archaeological Projects in Greater London.

11) Deemed Discharge - Written Scheme of Investigation (Historic England – GLAAS)

INFORMATIVE: The Condition addressing a Written Scheme of Investigation (WSI) is exempt from deemed discharge under schedule 6 of The Town and Country Planning (Development Management Procedure) (England) Order 2015.

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12) Evaluation - Written Scheme of Investigation (Historic England – GLAAS)

INFORMATIVE: Historic England GLAAS envisages that archaeological fieldwork would comprise the following:

Geoarchaeological Assessment and Coring

Geoarchaeology is the application of earth science principles and techniques to the understanding of thearchaeological record. Coring involves boreholes drilled into the buried deposits to record (and sample) their characteristics, extent and depth. It can assist in identifying buried landforms and deposits of archaeological interest, usually by using the results in deposit models. Coring is often undertaken when the deposits of interest are too deep for conventional digging, or when large areas need to be mapped. It is only rarely used in isolation usually forming part of either an archaeological evaluation to inform a planning decision or the excavation of a threatened heritage asset.

Evaluation

An archaeological field evaluation involves exploratory fieldwork to determine if significant remains are present on a site and if so to define their character, extent, quality and preservation. Field evaluation may involve one or more techniques depending on the nature of the site and its archaeological potential. It will normally include excavation of trial trenches. A field evaluation report will usually be used to inform a planning decision (pre-determination evaluation) but can also be required by condition to refine a mitigation strategy after permission has been granted.
The scope of the archaeological mitigation will depend on the results of the above phases of work. You can find more information on archaeology and planning in Greater London on our website This response only relates to archaeology. You should also consult Historic England's Development Management on statutory matters.

13) Asbestos Survey (LBH Environmental Health)

INFORMATIVE: Prior to demolition of existing buildings, an asbestos survey should be carried out to identify the location and type of asbestos containing materials. Any asbestos containing materials must be removed and disposed of in accordance with the correct procedure prior to any demolition or construction works carried out.

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14) Positive Pumped Device (Thames Water)

INFORMATIVE Thames Water requests that the Applicant should incorporate within their proposal, protection to the property by installing a positive pumped device (or equivalent reflecting technological advances) to avoid the risk of backflow at a later date, on the assumption that the sewerage network may surcharge to ground level during storm conditions. Fitting only a non-return valve could result in flooding to the property should there be prolonged surcharge in the public sewer.

15) Groundwater Risk Management Permit (Thames Water)

INFORMATIVE: If as part of the basement development there is a proposal to discharge ground water to the public network, this would require a Groundwater Risk Management Permit from Thames Water. Any discharge made without a permit is deemed illegal and may result in prosecution under the provisions of the Water Industry Act 1991.

Thames Water would expect the developer to demonstrate what measures he will undertake to minimise groundwater discharges into the public sewer. Permit enquiries should be directed to Thames Water's Risk Management Team by telephoning 02035779483 or by emailing wwqriskmanagement@thameswater.co.uk. Application forms should be completed on line via www.thameswater.co.uk/wastewaterquality

16) Minimum Pressure (Thames Water)

INFORMATIVE: Thames Water will aim to provide customers with a minimum pressure of 10m head (approx 1 bar) and a flow rate of 9 litres/minute at the point where it leaves Thames Waters pipes. The developer should take account of this minimum pressure in the design of the proposed development.

17) Water Mains Crossing or Close to Development (Thames Water)

INFORMATIVE: There are water mains crossing or close to development. Thames Water do NOT permit the building over or construction within 3m of water mains. If applicant is planning significant works near TW mains (within 3m) TW need to check that development doesn't reduce capacity, limit repair or maintenance activities during and after construction, or inhibit the services we provide in any other way. The applicant is advised to read our guide working near or diverting our pipes.
https://developers.thameswater.co.uk/Developing-a-large-site/Planning-yourdevelopment/Working-near-or-diverting-our-pipes

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18) Development within 15m of Thames Water Assets (Thames Water)

INFORMATIVE: The applicant is advised to read TW guide 'working near our assets' to ensure your workings will be in line with the necessary processes you need to follow if you're considering working above or near our pipes or other structures. https://developers.thameswater.co.uk/Developing-a-large-site/Planning-yourdevelopment/Working-near-or-diverting-our-pipes. Should you require further information please contact Thames Water. Email: developer.services@thameswater.co.uk.

19) Ground Water Source Protection Strategies (Thames Water)

INFORMATIVE: More detailed information regarding Source Protection Strategies can be obtained from Thames Waters' Groundwater Resources Team email GroundwaterResources@Thameswater.co.uk Tel: 0203 577 3603.

20) Network Rail Asset Protection (Network Rail)

INFORMATIVE: Network Rail strongly recommends the developer contacts Network Rail Asset Protection London South East Asset Protection anglia@networkrail.co.uk prior to any works commencing on site, and also to agree an Asset Protection Agreement with us to enable approval of detailed works. More information can also be obtained from our website at www.networkrail.co.uk/aspx/1538.aspx.

21) Safe Operation of the Railway (Network Rail)

INFORMATIVE: The Developer must ensure that their proposal, both during construction and after completion of works on site, does not:

- Encroach onto Network Rail land
- Affect the safety, operation or integrity of the company's railway and its infrastructure
- Undermine its support zone
- Damage the company's infrastructure
- Place additional load on cuttings
- Adversely affect any railway land or structure
- Over-sail or encroach upon the air-space of any Network Rail land
- Cause to obstruct or interfere with any works or proposed works or Network Rail development both now and in the future

The developer should comply with the following comments and requirements for the safe operation of the railway and the protection of Network Rail's adjoining land.

22) Safe Operation of the Railway - Future Maintenance (Network Rail)

INFORMATIVE: The development must ensure any future maintenance can be conducted solely on the applicant's land. The applicant must ensure that any construction and any subsequent maintenance can be carried out to any proposed buildings or structures without adversely affecting the safety of, or encroaching upon Network Rail's adjacent land and air-space, and therefore all/any building should be situated at least 2 metres (3m for overhead lines and third rail) from Network Rail's boundary.

The reason for the 2m (3m for overhead lines and third rail) stand off requirement is to allow for construction and future maintenance of a building and without requirement for access to the operational railway environment which may not necessarily be granted or if granted subject to railway site safety requirements and special provisions with all associated railway costs charged to the applicant. Any less than 2m (3m for overhead lines and third rail) and there is a strong possibility that the applicant (and any future resident) will need to utilise Network Rail land and air-space to facilitate works.

The applicant / resident would need to receive approval for such works from Network Rail Asset Protection, the applicant / resident would need to submit the request at least 20 weeks before any works were due to commence on site and they would be liable for all costs (e.g. all possession costs, all site safety costs, all asset protection presence costs). However, Network Rail is not required to grant permission for any third party access to its land. No structure/building should be built hard-against Network Rail's boundary as in this case there is an even higher probability of access to Network Rail land being required to undertake any construction / maintenance works. Equally any structure/building erected hard against the boundary with Network Rail will impact adversely upon our maintenance teams' ability to maintain our boundary fencing and boundary treatments.

23) Safe Operation of the Railway - Drainage (Network Rail)

INFORMATIVE: Storm/surface water must not be discharged onto Network Rail's property or into Network Rail's culverts or drains except by agreement with Network Rail. Suitable drainage or other works must be provided and maintained by the Developer to prevent surface water flows or run-off onto Network Rail's property. Proper provision must be made to accept and continue drainage discharging from Network Rail's property; full details to be submitted for approval to Network Rail Asset Protection.

Suitable foul drainage must be provided separate from Network Rail's existing drainage. Soakaways, as a means of storm/surface water disposal must not be constructed near/within 10 – 20 metres of Network Rail's boundary or at any point which could adversely affect the stability of Network Rail's property. After the completion and occupation of the development, any new or exacerbated problems attributable to the new development shall be investigated and remedied at the applicants' expense.

24) Safe Operation of the Railway – Plant and Materials (Network Rail)

INFORMATIVE: All operations, including the use of cranes or other mechanical plant working adjacent to Network Rail's property, must at all times be carried out in a "fail safe" manner such that in the event of mishandling, collapse or failure, no plant or materials are capable of falling within 3.0m of the boundary with Network Rail.

25) Safe Operation of the Railway – Scaffolding (Network Rail)

INFORMATIVE: Any scaffold which is to be constructed within 10 metres of the railway boundary fence must be erected in such a manner that at no time will any poles over-sail the railway and protective netting around such scaffold must be installed. The applicant/applicant's contractor must consider if they can undertake the works and associated scaffold/access for working at height within the footprint of their property boundary.

26) Safe Operation of the Railway – Piling (Network Rail)

INFORMATIVE: Where vibro-compaction/displacement piling plant is to be used in development, details of the use of such machinery and a method statement should be submitted for approval to Network Rail Asset Protection prior to the commencement of works and the works shall only be carried out in accordance with the approved method statement.

27) Safe Operation of the Railway – Fencing (Network Rail)

INFORMATIVE: In view of the nature of the development, it is essential that the developer provide (at their own expense) and thereafter maintain a substantial, trespass proof fence along the development side of the existing boundary fence, to a minimum height of 1.8 metres. The 1.8m fencing should be adjacent to the railway boundary and the developer/applicant should make provision for its future maintenance and renewal without encroachment upon Network Rail land.

Network Rail's existing fencing / wall must not be removed or damaged and at no point either during construction or after works are completed on site should the foundations of the fencing or wall or any embankment therein, be damaged, undermined or compromised in any way. Any vegetation on Network Rail land and within Network Rail's boundary must also not be disturbed. Any fencing installed by the applicant must not prevent Network Rail from maintaining its own fencing/boundary treatment.

28) Safe Operation of the Railway – Lighting (Network Rail)

INFORMATIVE: Any lighting associated with the development (including vehicle lights) must not interfere with the sighting of signalling apparatus and/or train drivers vision on approaching trains. The location and colour of lights must not give rise to the potential for confusion with the signalling arrangements on the railway. The developers should obtain Network Rail's approval of their detailed proposals regarding lighting.

29) Safe Operation of the Railway – Noise and Vibration (Network Rail)

INFORMATIVE: The potential for any noise/ vibration impacts caused by the proximity between the proposed development and any existing railway must be assessed in the context of the National Planning Policy Framework which hold relevant national guidance information. The current level of usage may be subject to change at any time without notification including increased frequency of trains, night time train running and heavy freight trains.

30) Safe Operation of the Railway – Vehicle Incursion (Network Rail)

INFORMATIVE: Where a proposal calls for hard standing area / parking of vehicles area near the boundary with the operational railway, Network Rail would recommend the installation of a highways approved vehicle incursion barrier or high kerbs to prevent vehicles accidentally driving or rolling onto the railway or damaging lineside fencing.

31) Asset Protection Agreement (Network Rail)

INFORMATIVE: Network Rail strongly recommends the developer contacts Network Rail Asset Protection London South East at AssetProtectionanglia@networkrail.co.uk prior to any works commencing on site, and also to agree an Asset Protection Agreement with us to enable approval of detailed works. More information can also be obtained from our website at www.networkrail.co.uk/aspx/1538.aspx.

32) Commercial Waste Disposal (LBH Waste Management)

INFORMATIVE: Commercial Business must ensure all waste produced on site are disposed of responsibly under their duty of care within Environmental Protection Act 1990. It is for the business to arrange a properly documented process for waste collection from a licensed contractor of their choice. Documentation must be kept by the business and be produced on request of an authorised Council Official under Section 34 of the Act. Failure to do so may result in a fixed penalty fine or prosecution through the criminal Court system.

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33) Noise Receptors (LBH Environmental Health – Noise)

INFORMATIVE: To effectively protect the existing noise sensitive receptors from adverse levels of noise and vibration, the principal contactor shall be encouraged to apply for prior consent under Section 61 of the Control of Pollution Act 1974 for this development.

34) Phasing for CIL Purposes (LBH Development Management)

INFORMATIVE: For the avoidance of doubt, this planning permission is not a phased planning permission for the purposes of the Community Infrastructure Levy Regulations 2010 (as amended)



27/03/2019

Dean Hermitage
Head of Development Management and Planning Enforcement
Planning Service

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Appendix B
Landscape Planting Plans.

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N

0 5 1:250 10 15

Metres

LEGEND

TREE PLANTING

SHRUB PLANTING

MAINTENANCE AND IMPLEMENTATION

GENERAL

All planting tree and shrub planting to be certified British stock or have been kept in a UK nursery for at least 1no. growing season. All trees and shrubs to comply with BS 3936. All plants shall be transported and manouvred in accordance with the Code of Practice for Plant Handling (CPSE).

Handling should be to HTS 'Handling and Establishing Landscape Plants'

Planting shall be carried out between October and March. The soil condition should be moist, friable and (excepting aquatic/marginal planting) not waterlogged.

Planting should be set out in a staggered grid pattern to avoid bare areas. Contractor should allow for 10% over purchase to ensure suitable coverage is met.

Compacted soil should be ripped through before topsoiling.

Percolation tests should be carried out prior to trees and shrub planting, to ensure the soils is not prone to waterlogging.

All planting to be set out on site as directed by the project landscape architect

NOTE

Root barrier locations to be coordinated with utilities on site. Utilities can pass adjacent to the root barrier to engineer's specification.

NOTE

1. TO BE READ IN CONJUNCTION WITH TH-IS-00-001-L-3248-91-700 PLANT SCHEDULE

Rev	Date	By	Notes
P01	15/12/2023	FY	S3 ISSUE
T03	22/08/2023	FY	RE-UPLOAD
T02	23/02/2023	FY	S4 ISSUE

Client
ARGENT SERVICES LLP

Project
FERRY ISLAND
TOTTENHAM HALE

Title
PLANTING PLAN GROUND FLOOR

Status
S3 SUITABLE FOR REVIEW AND COMMENT

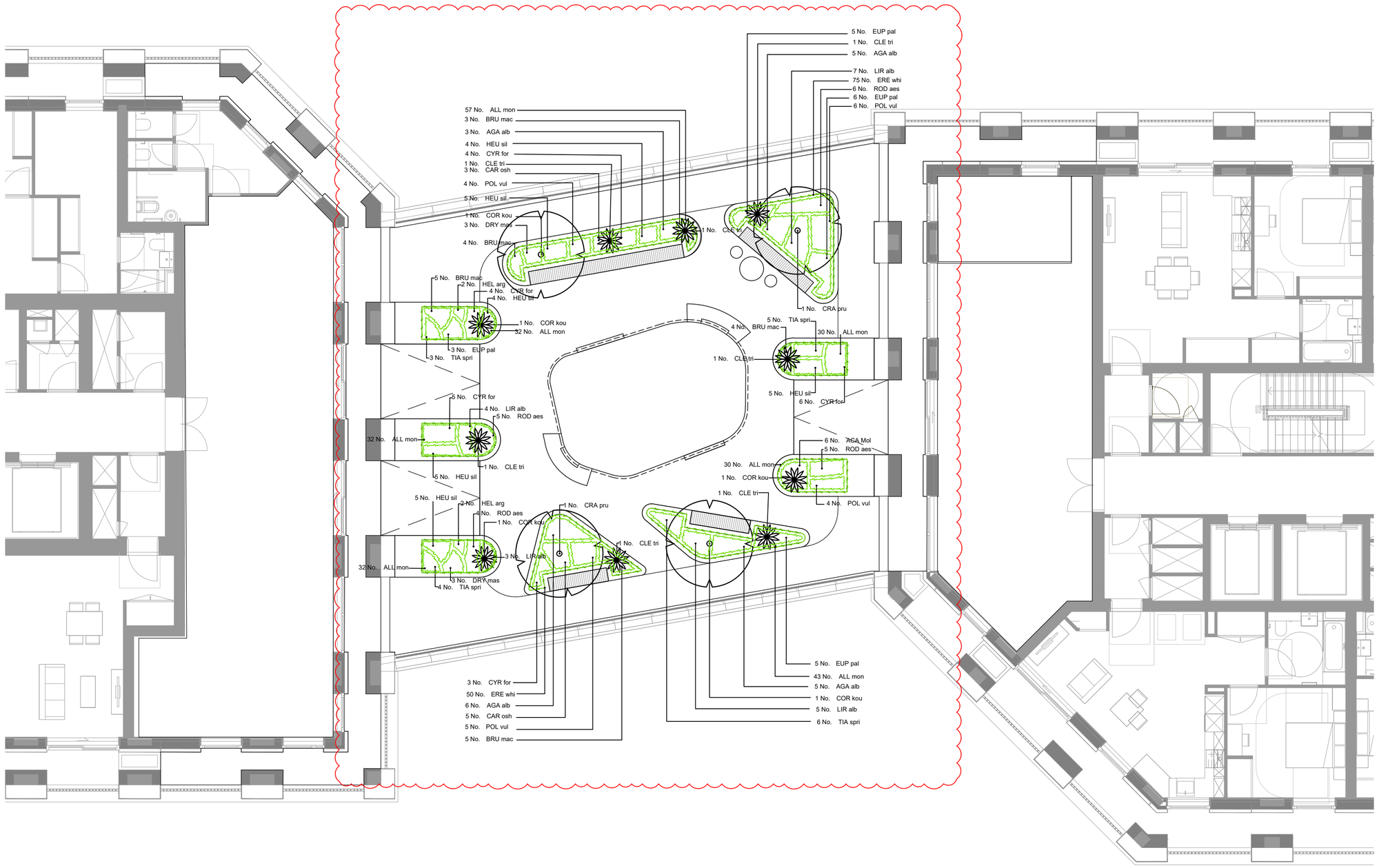
Drawing No. TH-IS-00-001-L-3248-91-100 | Scale 1:250@A2

Drawn ML | Date JAN 23 | Checked AW

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N

0 1:100 5

Metres

LEGEND

PROPOSED TREE

PROPOSED SPECIMEN PLANTING

PROPOSED ORNAMENTAL PLANTING

NOTE
1. TO BE READ IN CONJUNCTION WITH TH-IS-01-001-L-3248-91-700 PLANT SCHEDULE

MAINTENANCE AND IMPLEMENTATION

GENERAL
All planting tree and shrub planting to be certified British stock or have been kept in a UK nursery for at least 1no. growing season. All trees and shrubs to comply with BS 3936. All plants shall be transported and manouvred in accordance with the Code of Practice for Plant Handling (CPSE).

Handling should be to HTS 'Handling and Establishing Landscape Plants'

Planting shall be carried out between October and March. The soil condition should be moist, friable and (excepting aquatic/marginal planting) not waterlogged.

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Compacted soil should be ripped through before topsoiling.

Percolation tests should be carried out prior to trees and shrub planting, to ensure the soils is not prone to waterlogging.

All planting to be set out on site as directed by the project landscape architect

Rev	Date	By	Notes
P01	15.12.2023	FY	S3 ISSUE
T02	25.08.2023	HM	S3 FOR COMMENT
T01	23/02/2023	FY	S4 ISSUE

Client
ARGENT SERVICES LLP

Project
FERRY ISLAND
TOTTENHAM HALE

Title
PLANTING PLAN BUILDING 01 LEVEL 07

Status
S3 SUITABLE FOR REVIEW AND COMMENT

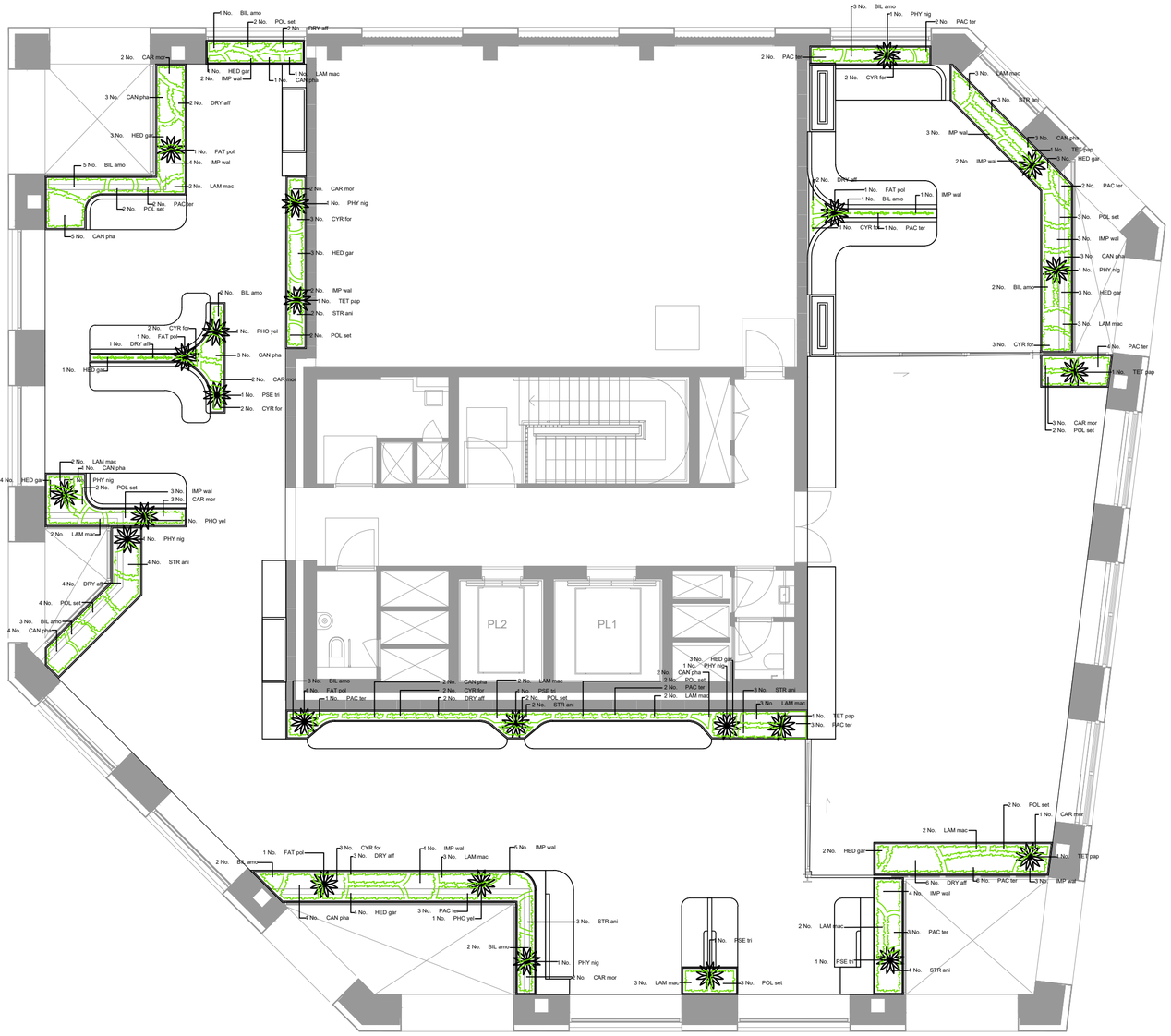
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Date FEB 2023
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1:100

0 5

Metres

LEGEND

PROPOSED SPECIMEN PLANTING

PROPOSED ORNAMENTAL PLANTING

NOTE
1. TO BE READ IN CONJUNCTION WITH TH-IS-01-001-L-3248-91-701 PLANTING SCHEDULE

MAINTENANCE AND IMPLEMENTATION

GENERAL
All planting tree and shrub planting to be certified British stock or have been kept in a UK nursery for at least 1no. growing season. All trees and shrubs to comply with BS 3936. All plants shall be transported and manouvred in accordance with the Code of Practice for Plant Handling (CPSE).

Handling should be to HTS 'Handling and Establishing Landscape Plants'

Planting shall be carried out between October and March. The soil condition should be moist, friable and (excepting aquatic/marginal planting) not waterlogged.

Planting should be set out in a staggered grid pattern to avoid bare areas. Contractor should allow for 10% over purchase to ensure suitable coverage is met.

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Percolation tests should be carried out prior to trees and shrub planting, to ensure the soils is not prone to waterlogging.

All planting to be set out on site as directed by the project landscape architect

Rev	Date	By	Notes
P01	15.12.2023	FY	S3 ISSUE
T02	25.08.2023	FY	S3 FOR COMMENT
T01	23/02/2023	FY	S4 ISSUE

Client
ARGENT SERVICES LLP

Project
FERRY ISLAND
TOTTENHAM HALE

Title
PLANTING PLAN BUILDING 01 LEVEL 19

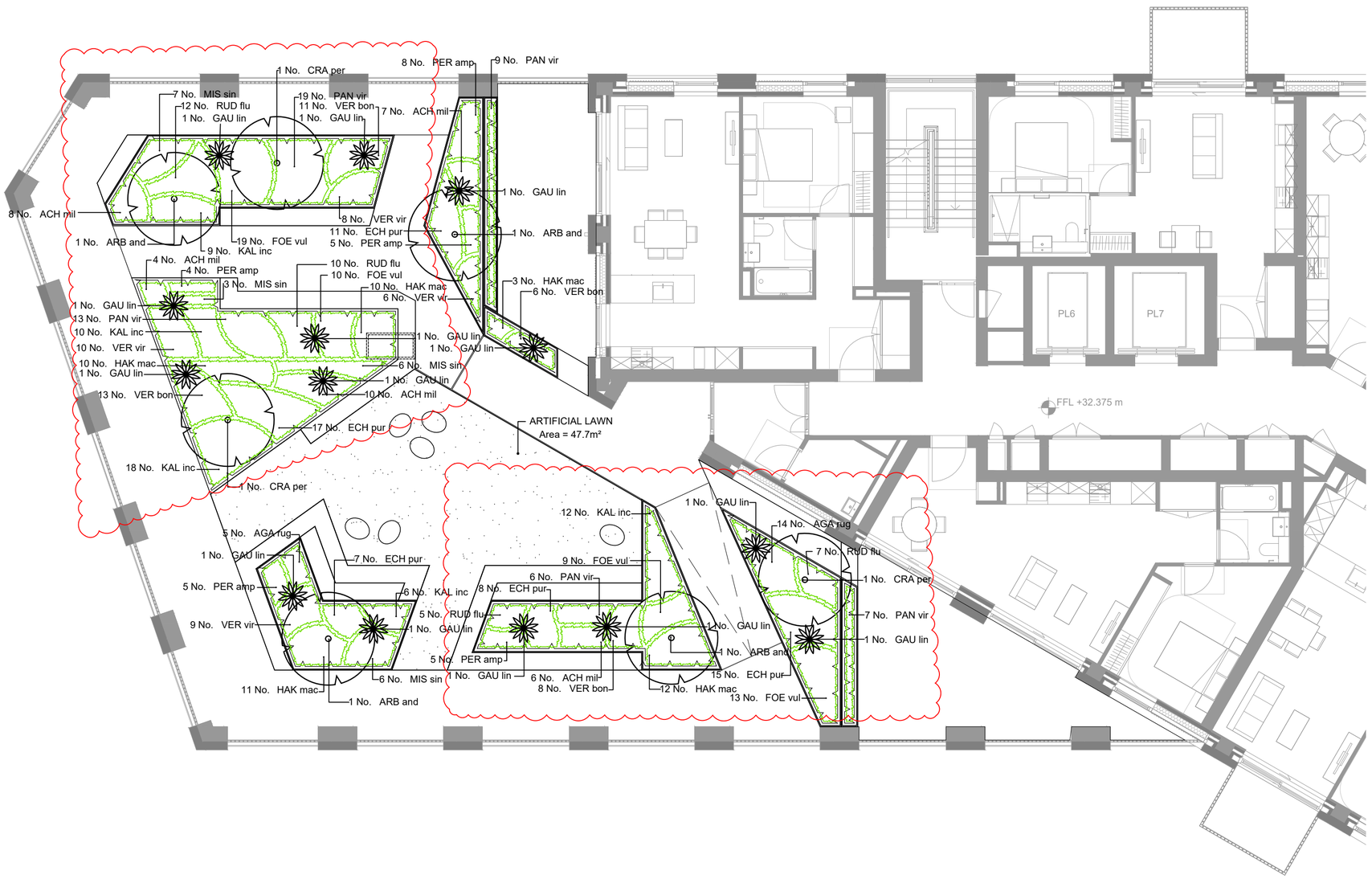
Status
S3 SUITABLE FOR REVIEW AND COMMENT

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Metres

LEGEND

- PROPOSED TREE
- PROPOSED SPECIMEN PLANTING
- PROPOSED ORNAMENTAL PLANTING
- PROPOSED ARTIFICIAL LAWN

NOTE
1. TO BE READ IN CONJUNCTION WITH TH-IS-02-001-L-3248-91-700 PLANT SCHEDULE

MAINTENANCE AND IMPLEMENTATION

GENERAL
All planting tree and shrub planting to be certified British stock or have been kept in a UK nursery for at least 1no. growing season. All trees and shrubs to comply with BS 3936. All plants shall be transported and manouvred in accordance with the Code of Practice for Plant Handling (CPSE).

Handling should be to HTS 'Handling and Establishing Landscape Plants'

Planting shall be carried out between October and March. The soil condition should be moist, friable and (excepting aquatic/marginal planting) not waterlogged.

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All planting to be set out on site as directed by the project landscape architect

Rev	Date	By	Notes
P01	15/12/2023	FY	S3 ISSUE
T01	23/02/2023	FY	S4 ISSUE

Client
ARGENT SERVICES LLP

Project
FERRY ISLAND
TOTTENHAM HALE

Title
PLANTING PLAN
BUILDING 02 LEVEL 07

Status
S3 SUITABLE FOR REVIEW AND COMMENT

Drawing No.
TH-IS-02-001-L-3248-91-100

Scale
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Drawn
ML

Date
FEB 2023

Checked
AW

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Appendix C
Capping Layer Soil Import Specification.

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Note: The removal of the Made Ground during excavation of the basement, dewatering and treatment will aid the betterment of the groundwater at the site. The risk to Controlled Waters is considered to be low, therefore the capping import specification is protective of human health only.

Appendix C. Maximum Permissible Concentrations for Imported Capping Layer Soils

Determinant		Residential without Plant Uptake Human Health Generic Assessment Criteria (mg/kg)	Suggested Capping Import Maximum permissible concentration[1] (mg/kg)[2]	Selection of Import Criteria[11]
		6% SOM	6% SOM	
Arsenic		30	30[4]	GAC[4] to be used
Beryllium		1.7	1.7[4]	GAC[4] to be used
Boron (water soluble)		10,800	5[5]	More stringent lower limit for potential phytotoxic effect to be used
Cadmium		85.3	85.3[4]	GAC[4] to be used
Chromium (III)		887	887[4]	GAC[4] to be used
Chromium (VI)		5.75	5.75[4]	GAC[4] to be used
Lead		310	310[4]	C4SL[10] to be used
Mercury		75.3	75.3[4]	GAC[4] to be used
Selenium		596	596[4]	GAC[4] to be used
Copper		7,130	135[3]	More stringent specification for Topsoil value to be used
Nickel		182	75[3]	More stringent specification for Topsoil value to be used
Zinc		40,400	200[3]	More stringent specification for Topsoil value to be used
Vanadium		651	651[4]	GAC[4] to be used
Benzo(a)pyrene		3.2	3.2[4]	GAC[4] to be used
Benzo(a)anthracene		15	15[4]	GAC[4] to be used
Benzo(b)fluoranthene		4.06	4.06[4]	GAC[4] to be used
Benzo(k)fluoranthene		107	107[4]	GAC[4] to be used
Chrysene		31.9	31.9[4]	GAC[4] to be used
Dibenzo(a,h)anthracene		0.34	0.34[4]	GAC[4] to be used
Indeno(1,2,3-cd)pyrene		46.2	46.2[4]	GAC[4] to be used
Naphthalene		12.4	12.4[4]	GAC[4] to be used
TPH aliphatic[6]	EC5-6	107	107[4]	GAC[4] to be used
	EC>6-8	328	328[4]	GAC[4] to be used
	EC>8-10	87.7	87.7[4]	GAC[4] to be used
	EC>10-12	453	453[4]	GAC[4] to be used
	EC>12-16	2,970	750[7]	More stringent assessment criteria[7] to be used
	EC>16-35	12,900	750[7]	More stringent assessment criteria[7] to be used
TPH aromatic[6]	EC5-7	1.42	1.42[4]	GAC[4] to be used
	EC>7-8	3,860	750[7]	More stringent assessment criteria[7] to be used
	EC>8-10	144	144[4]	GAC[4] to be used
	EC>10-12	720	720[4]	GAC[4] to be used
	EC>12-16	2,060	750[7]	More stringent assessment criteria[7] to be used
	EC>16-21	1,940	750[7]	More stringent assessment criteria[7] to be used
	EC>21-35	1,940	750[7]	More stringent assessment criteria[7] to be used
Sum of TPH aliphatic & aromatic C5-C10		4,528	< 750[7]	More stringent assessment criteria[7] to be used
Sum of TPH aliphatic & aromatic C10+		22,983	< 750[7]	
pH		5-10	5-10	
Monohydric Phenols		2,310[4]	750[7]	GAC[4] to be used
Free Cyanide		34[4]	34[4]	GAC[10] to be used
Asbestos			No detectable fibres[8]	

Notes:

1. These maximum permissible concentrations (MPCs) are import criteria only and are not necessarily appropriate for human health risk assessment.
2. In mg/kg dry soil except pH and asbestos.
3. British Standard BS3882:2015 Specification for Topsoil and requirements for use. Table 1. Values taken for pH 6-7.

4. Generic Assessment Criteria generated 'in-house' based on CLEA model Version 1.071.
5. Nable, Banuelos and Paul. (1997). *Boron Toxicity*. Plant and Soil, **Vol. 193**, pp1 81-198. Lower limit for potential phytotoxic effect
6. Speciated TPH values must not exceed individual GAC. The listed GAC consider risks to human health, but it is possible that some of the values for heavy-end TPH could pose a risk to controlled waters. As such, a lower import criterion for these fractions is recommended.
7. Assessment criteria of 750mg/kg is noted to be more stringent than Site Specific Assessment Criteria/GAC using CLEA and should the material be excavated in the future, should prevent it being classified as hazardous waste.
8. Laboratory screen by microscopy may be required subject to source of material.
9. Published C4SL for lead (DEFRA, 2014)
10. GAC for free cyanide derived by Atkins based on acute exposure for a 0-6 year old child
11. Requirement for British Standard for Topsoil and Subsoil, or landscaping specification to be met. All other material to be imported as a product.

Appendix D
Planning Approval (B19 and B24).

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Haringey LONDON

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14 August 2023

TOWN AND COUNTRY PLANNING ACT 1990
TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE) (ENGLAND) ORDER 2015
NOTICE OF PLANNING PERMISSION

Case Reference	**HGY/2022/0779**
Location	**Strategic Development Partnership (SDP) Sites, Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West, Station Road, London, N17**
Proposal	**Application for the approval of details pursuant to conditions B19 (Monitoring and Maintenance Plan - Contamination - Environment Agency) and B24 (Contaminated Land - Part 1 - LBH Environmental Health) in relation to Plot B (Ferry Island site) of the Tottenham Hale Centre planning permission (LPA ref: HGY/2018/2223) dated 27 March 2019**
Received	**23 March 2022**

In pursuance of their powers under the above Act and Order, Haringey Council as Local Planning Authority hereby GRANT their approval of this application received on the above date.

Title	Description	Date
Geotechnical + Geo-environmental Interpretative Report_Part5		24 March 2022
Geo-environmental Assessment Report - Part 4		24 March 2022
Geo-environmental Assessment Report - Part 2		24 March 2022
Geo-environmental Assessment Report - Part 3		24 March 2022
Geotechnical + Geo-environmental Interpretative Report_Part4		24 March 2022
ApplicationFormRedacted		24 March 2022
Geotechnical + Geo-environmental Interpretative Report_Part1		24 March 2022
Geotechnical + Geo-environmental Interpretative Report_Part6		24 March 2022
Geo-environmental Assessment Report - Part 1		24 March 2022
Covering Letter		24 March 2022
Geotechnical + Geo-environmental Interpretative Report_Part2		24 March 2022
Geotechnical + Geo-environmental Interpretative Report_Part8		24 March 2022
Geotechnical + Geo-environmental Interpretative Report_Part7		24 March 2022
ApplicationForm		24 March 2022
Cover Note to Geo-environmental Investigation report		24 March 2022

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Geotechnical + Geo-environmental Interpretative Report_Part3	24 March 2022
Comments from LBH Lead Officer - Pollution	22 April 2022
Comments from the Environment Agency	27 April 2022
FER-WPP-JRL-PW-0001 rev 02 Ferry Island Tottenham CFA Piles	18 July 2023
CG39277A_FerryIsland PlotB_RAMS_Novemeber2022	18 July 2023
CG39277A_FerryIsland PlotB_EA Letter_November2022	18 July 2023
CG38277A_FerryIsland PlotB_TN_Novemebr2022	18 July 2023
223722 GIR-F01 Ferry Island Rv00	18 July 2023
T22001-Ferry Island-CFA Piling SSOW#001 Rev01	18 July 2023
CG39277A_Ferry Island PlotB_RCIS LR_Jun23	19 July 2023



Robbie McNaugher
Head of Development Management and Planning Enforcement
Planning Service

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Informatives:

The applicant is required to to address the issue in relation to the importation criteria as raised by the Environment Agency prior to Condition B24 being discharged in full.

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Appendix E
Planning Approval (B29).

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Planning Service

Rob Krzyszowski Assistant Director Planning, Building Standards & Sustainability Service

Matthew Eyre
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London
W1F 0EQ

On behalf of
Midgard Ltd
C/O Agent

Planning Application Reference No. **HGY/2022/2460**

TOWN AND COUNTRY PLANNING ACT 1990
TOWN AND COUNTRY PLANNING (GENERAL PERMITTED DEVELOPMENT) (ENGLAND) ORDER 2015

NOTICE OF DECISION ON DETAILS SUBMISSION

Location: **Strategic Development Partnership (SDP) SitesWelbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West, Station Road N17**

Proposal: **Application for the part approval of details pursuant to condition B29 (Demolition/Construction Environmental Management Plans) in relation to Plot B (Ferry Island site) of the Tottenham Hale Centre planning permission (LPA ref: HGY/2018/2223) dated 27 March 2019.**

In pursuance of their powers under the above Act and Order, Haringey Council as Local Planning Authority hereby **GRANT** their approval of this application dated 23/09/2022 and drawing numbers: Covering letter prepared by Quod dated 23.09.2022; Application Form; Ferry Island Construction Environmental Management Plan with Construction Logistics Plan Included prepared by JR Midgard dated (15.10.2022); Cass Allen Noise Monitoring - Station Road elevation (2); CCS document; Ferry Island - Proposed Logistics Overview P09 Rev 2; Non-Road Mobile Machinery (NRMM) Register - Ferry Island; RAMS01 - 22461 - R0 - Risk Assessment Method Statement - Ferry Island, London.

24/11/2022

Robbie McNaugher

Robbie McNaugher
Head of Development Management and Planning Enforcement
Planning Service

Planning Service
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Appendix F
Planning Approval (B24).

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Planning, Building Standards &
Sustainability Service

Haringey LONDON

Matthew Eyre
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13 March 2024

TOWN AND COUNTRY PLANNING ACT 1990
TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE) (ENGLAND) ORDER 2015
NOTICE OF PLANNING PERMISSION

Case Reference	**HGY/2023/2212**
Location	**Strategic Development Partnership (SDP) Sites, Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West, Station Road, London, N17**
Proposal	**Approval of details pursuant to condition B24 (Contaminated Land) in relation to Plot B (Ferry Island site) of the Tottenham Hale Centre planning permission (LPA ref: HGY/2018/2223) dated 27 March 2019**
Received	**15 August 2023**

In pursuance of their powers under the above Act and Order, Haringey Council as Local Planning Authority hereby GRANT their approval of this application received on the above date.

Title	Description	Date
AppC_Capping Import Spec_Aug2023.pdf	Other relevant information	15 August 2023
Covering Letter - B24 Full - 15.08.23.pdf	Covering letter	15 August 2023
CG39277A_FerryIslandPlotBRMS_LR_January2024		25 January 2024

Robbie McNaugher

Robbie McNaugher
Head of Development Management and Planning Enforcement
Planning Service

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6th Floor, River Park House,
225 High Road, Wood Green,
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Informatives:

The details approved under this grant should be read in conjunction with the details approved under ref: HGY/2022/0779 where the other parts of Condition B24 were approved.

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Appendix G
CEMP.

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Construction Environmental Management Plan (CEMP)

Ferry Island



15/08/22	03/02/25	03/02/25	03/02/25
Alice Dear	Laura Cabeza Escobar	Brian Hallinan	Donal Reale
Sustainability Manager	Environmental Manager	Shell & Core Director	Project Director
Prepared By	Revision Author	Category 3 Checked	Approved

Current Version

Suitability	Revision	Security	Date	Author	Notes
A1	C06	Public	03/02/25	LE	Document reviewed and updated

Version History

Suitability	Revision	Security	Date	Author	Notes
A1	C01	Public	15/08/22	AD	First Issue
A1	C02	Public	21/09/23	AD	Updated format & programme dates
A1	C03	Public	06/02/24	LE	Updated to incorporate Environmental and Sustainable Procurement Policies 2024; changes within site team management and programme dates
A1	C04	Public	02/07/24	LE	Document reviewed to incorporate the merge of environmental team with H&S team
A1	C05	Public	18/10/24	LE	Document reviewed to update changes within site management

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1.0 Introduction

The JRL Group has a sustainable vision for all its construction sites based upon eco-efficient practices and eco-effective behaviour. Fundamental to its vision are the continual improvements in environmental performance throughout its sites and an understanding of their corporate responsibility to the communities it works within. The JRL Group environmental management procedure sets out the objective to achieve environmental and sustainable development simultaneously with a view to continuously improve the service, quality and commitment it provides.

This Construction Environmental Management Plan (CEMP) document has been produced in outline format. As a live and dynamic document, additions may be made to this plan as the project evolves.

1.1 Pre-Commencement Planning Condition no. B29

The initial development of this CEMP has been produced prior to commencement of any works on site in line with planning condition no. B29 (HGY/2018/2223) –

"Development shall not commence within Plot B (other than demolition) until a Construction Environmental Management Plan (CEMP) in respect of Plot B has been submitted to and approved in writing by the local planning authority.

a) The CEMP shall include a Construction Logistics Plan (CLP) and Air Quality and Dust Management Plan (AQDMP) in respect to Plot B.
b) The CEMP shall provide details of how construction works in respect of Plot B are to be undertaken respectively and shall include:
    i. A construction method statement which identified the stages and details how works will be undertaken - throughout
    ii. Details of working hours, which unless otherwise agreed with the Local Planning Authority shall be limited to 08:00 to 18:00 Monday to Friday and 08:00 to 13:00 on Saturdays – section 5.1
    iii. Details of plant and machinery to be used during construction works – section 5.3
    iv. Details of an unexploded ordnance survey – section 9.7
    v. Details of the waste management strategy – section 6.0
    vi. Details of community engagement arrangements – section 13.0
    vii. Details of any acoustic hoarding – section 5.3 and 8.3
    viii. A temporary drainage strategy and performance specification to control surface water runoff and Pollution Prevention Plan (in accordance with Environment Agency guidance) – section 7.0
    ix. Details of external lighting – section 5.4 and 10.6
    x. Details of any other standard environmental management and control measures to be implemented. – section 4.0, 9.0, 10.0 and 11.0
c) The CLP will be in accordance with Transport for London's Construction Logistics Plan Guidance (July 2017) and shall provide details on:
    i. Monitoring and joint working arrangements, where appropriate
    ii. Site access and car parking arrangements
    iii. Delivery booking systems
    iv. Agreed routes to/from the Plot
    v. Timing of deliveries to and removals from the Plot (to avoid peak times, as agreed with Highways Authority, 07 to 09:00 and 16:00 to 18:00 where possible) – section 8.5

vi. Travel plans for staff/personnel involved in demolition/construction works to detail construction phase – section 8.6
vii. Joint arrangements with neighbouring developers for staff parking, lorry parking and consolidation of facilities such as concrete batching.

d) The AQDMP will be in accordance with the Greater London Authority SPG Dust and Emissions Control (2014) and shall include:
i. Mitigation measures to manage and minimise demolition/construction dust emissions during works – section 5.3 and 16.0
ii. Details confirming the Plot has been registered at http://nrmm.london – section 8.8
iii. Evidence of Non-Road Mobile Machinery (NRMM) and plant registration shall be available on site in the event of Local Authority Inspection – section 8.8
iv. An inventory of NRMM currently on site (machinery should be regularly services and service logs kept on site, which includes proof of emission limits for equipment for inspection) - – section 8.8
v. A dust risk assessment for the works – section 5.2
vi. Lorry parking, in joint arrangements where appropriate

Additionally, the site of Contractor Company must be registered with the Considerate Constructors Scheme. Proof of registration must be sent to the Local Planning Authority prior to any works being carried out. "

2.0 Environmental Management System

JRL Group's environmental policy has been developed in accordance with the nature, scale and environmental impacts of the company's activities. This policy provides a broad framework for setting environmental objectives and targets and delivering sustainable development and has the full support and commitment of the Board of Directors. Our environmental policy includes a commitment to continual improvement in the prevention of pollution and to compliance with the relevant environmental legislation, regulations and requirements. The Policy is updated annually and forms part of the EMS, which is certified to ISO 14001: 2015 standard.

It is the responsibility of the Project Manager to ensure effective implementation and understanding of the environmental management system. This should be undertaken with the support of environment manager, advisor, specialists and other suitably qualified personnel. It must also be made clear to all site personnel that each individual has a responsibility to ensure no environmental incidents occur.

The following outlines the processes and plans to be implemented on site to ensure all environmental aspects and impacts are identified and sufficient measures are put in place to reduce risks associated with the works.

2.1 Aspects & Impacts Register

In line with JRL Group Ltd. procedures, an Aspects and Impacts Register and Risk Assessment has been completed for the project in order to reduce the environmental impact of our site activities. This register also includes the control measures which will be put in place to minimise our environmental impacts. The Project Manager is responsible for ensuring that the control measures are fully implemented and monitored. The Risk Assessment is scored by analysing whether the aspects are regulated by legislation, are a contractual requirement and according to the likelihood and severity of the aspect occurring.

The significant environmental aspects which have been identified for this project are:

- Noise
- Dust
- Vibration
- Vehicle movements

2.2 Project Details

The Ferry Island development forms part of the Tottenham Hale development being carried out by Argent Related. The development will comprise the construction of a new shared basement, two residential buildings (7 to 38 storeys) and associated public realm space. Building 1 will include 376 build to rent apartments with ground floor shell and core retail units. Building 2 will include 108 private for sale apartments, also with shell and core retail units within the ground floor.

2.3 Site Location

Ferry Island is in the London Borough of Haringey. The address for the development is Ferry Island, Tottenham Hale, London, N17 9FR.

The Ferry Island site is bounded by the TfL bus station to the east, along with Tottenham Hale tube station. Residential and business buildings are located on the north side of Station Road. Ferry Lane is to the south of the development.



Figure 1: Site Location

2.4 Scope of Works

Programme Dates	Scope of Works
01/11/22 – 31/01/23	Site establishment and enabling works
07/09/23 – 17/06/24	Substructure, piling and basement excavation
22/04/24 – 13/05/25	Superstructure
11/07/24 – 11/11/25	Façade
05/08/24 – 07/04/26	Internal fit-out
27/06/25 – 14/07/26	External works

2.5 Subcontractors on Site

Midgard Ltd have been appointed principal contractor for Ferry Island. In addition, the following JRL Group companies, which are also audited against the ISO 14001 EMS, are included within the design and build process:

- JRL Drylining
- Ark Mechanical & Electrical
- J Reddington
- JRL Civil Engineering
- London Tower Crane Hire & Sale
- McMullen Facades

All subcontractors appointed are expected to comply with the requirements of this CEMP and the JRL Group environmental procedures.

3.0 Project Team Roles and Responsibilities

All members of the Project team are responsible for the effective planning, implementation, management, monitoring and review of all environmental control measures identified in this plan.

It is the responsibility of the Project Manager to ensure that team members are aware of their environmental responsibilities and that they are suitably trained as necessary.

Name	Responsibilities
Donal Reale **Project Director**	*To inform subcontractors and suppliers of significant environmental impacts and control measures required to minimise them.* *To request, review and comment on the subcontractors' method statements.* *To notify the Environmental Manager of any environmental incidents on site* *To encourage near miss reporting.*

Laura Cabeza Escobar **Environmental Manager**	*To write and maintain the CEMP.* *To complete the Environmental Aspects and Impacts Register.* *To manage and control all of the environmental documentation produced on this project.* *To carry out formal environmental management system audits.* *To carry out incident investigations and reporting if required.* *To liaise with the Council's Environmental Health Department and any other regulatory authorities including the EA.* *To advise the project team on environmental queries.* *To collate monthly environmental data provided by the Environmental Champion.* *To ensure all plant is registered on the Mayor of London's NRMM portal.* *To assist the site in preparation for Considerate Constructor Scheme visits.* *To champion and promote environmental best practices on site.*
Georgiana Radu **HSE Manager/Advisor**	*To carry out monthly HS&E site inspections.* *To support incident investigations and reporting if required.* *To champion environmental best practices and the considerate constructors scheme on site.* *To conduct on-site environmental training with the workforce (eg. spill kit training).*
Lucy Akinlosotu **Social Value Lead**	*To assist the site with maintaining a good relationship with local residents.* *To organise resident meetings when required and publish quarterly newsletters.* *To arrange events with local charities, schools etc.* *To maintain a complaints and enquiries log for the project.*
Richie Butler **Environmental Champion**	*To carry out weekly SHE 6E environmental checklist.* *To check waste transfer notes are compliant and collate in the site file.* *To check timber delivery notes are compliant and collate in the site file.* *To collate material delivery notes in the site file.* *To provide water and electricity meter readings and photos of meters to the Environmental Manager* *To provide fuel consumption figures to the Environmental Advisor.* *To provide the NRMM details for all plant on site to the Environmental Manager.* *To promote awareness of the RMP among the workforce.* *To enforce waste segregation on site (i.e. separate hazardous waste streams in separate Hazibags).* *To conduct at least two monthly environmental toolbox talk to raise environmental awareness amongst the workforce.*

4.0 Environmental Contractual Requirements

Requirements	Summary of Requirements
Client Reporting Requirements	Monthly client reporting • Noise, dust and vibration monitoring • eKPIs – electricity, fuel, water consumption and related carbon emissions • Carbon emissions from site deliveries – Datascope Considerate Constructors Scheme – project ref. 132492

Contractual Obligations	Planning Consent – HGY/2018/2223 Section 106 Agreement (27 March 2019) BREEAM New Construction 2018 'Very Good' Argent Related Code of Practice
Specific local authority agreements	Section 61 valid until 30/11/25
Requirements from previous studies or/and reports	The following tender documents have been reviewed as part of the CEMP production and their recommendations have been incorporated within this document: • Baseline Vibration Report (Sandy Brown, June 2018) • Ecology Appraisal (RPS, July 2018) • Environmental Noise Survey Report (Sandy Brown, June 2018) • Geotechnical Interpretative Report (Wood Thilsted, August 2018) • Geo-environmental Interpretive Report – 2020 (Langan, November 2021) • Risk Assessment for German Air-dropped UXO (Buro Happold, April 2018)
Other Statutory Authority Requirements	Thames Water Trade Effluent/Groundwater Discharge Licence Transport for London's Ultra Low Emission Zone Mayor of London's Non-Road Mobile Machinery – Central Activity Zone and Opportunity Areas The Mayor of London's publication "The Control of Dust and Emissions During Construction and Demolition" BRE Publication "Controlling Particles, Vapour and Noise Pollution from Construction Sites"

The JRL Group will comply with all key environmental legislation and guidance as outlined in the company's Environmental Legislation Register *BO-JRLG-EM-XX-RG-Z-0001*.

5.0 Nuisance

Nuisance for the purposes of this document is broken into four sections, namely dust, noise, vibration and lighting. The following section detail activities and control methods to be implemented on the project.

Sensitive receptors likely to be affected by construction nuisance as identified in consultation with the local authority include:

- Premier Inn London Tottenham Hale Hotel
- Residents along Station Road
- Hale Gardens residents

5.1 Site Operating Hours

Site operating hours are Monday to Friday, 08:00 to 18:00 and Saturday from 08:00 to 13:00. There will be no works carried out on Sundays or Bank holidays. This is confirmed by application and agreement of a Section 61 of the Control of Pollution Act 1974 by London Borough of Haringey Council.

Should works outside the normal hours of working be required, these will be subject to prior approval by London Borough of Haringey Council, under section 61 of the Control of Pollution Act 1974, unless these are emergency works. As relevant, Midgard will make an application to by London Borough of Haringey Council as soon as reasonably practicable and not less than 14 days before the relevant Works are to take place.

5.2 Dust Mitigation

Appropriate preventative measures to control dust emissions can significantly reduce the potential for dust generation. A robust site specific dust mitigation strategy can be found Section 17.0; this will be adhered to at all times and briefed to all workers on induction and via Tool box talks. The table below outlines how we aim to avoid impacts rising from dust that could affect our neighbours and the local environment.

Risk	Mitigation
Construction Traffic	• All construction traffic will follow specifically designated routes. • Speed limits will be put into place on site for all vehicular movements. • All vehicles carrying loose material will be covered. • Wheel wash facility to be used for vehicles leaving site.
Vehicles & Equipment	• Wet materials that have the potential to leak from the vehicle shall be transported in sealed vehicles. • All vehicles associated with the construction site shall comply with the standard of the London Low Emission Zone. For HGVs, the standard is Euro 6 for NO_x and PM. For heavier vans and mini buses the standard is Euro 6. • Prior to construction movements commencing, the developer/applicant is to register any Non-Road Mobile Machinery (NRMM) of a power rating between 37kW and 560kW at https://nrmm.london/ to help monitor the use of such equipment across London. NRMM used on the site shall be required to meet the following standards (EU Directive 97/68/EC): From 1st September 2020: Stage IIIB of the Directive as a minimum, within Greater London; Stage IV of the Directive as a minimum, within the Central Activity Zone. From 1st January 2025: Stage IV throughout London. From 1st January 2030: Stage V throughout London. • No idling when vehicles are stationary. The engines of vehicles and plant on site shall be not left running unnecessarily. • Avoid the use of diesel powered generators and use mains electricity or battery powered equipment, where possible. Diesel powered generators shall only be used if mains electricity or battery powered equipment is not available.

Highways	• Where appropriate, use of road sweepers will be incorporated to ensure highways remain clear of dust and mud. • Road edges and pathways will be swept by hand and damped down as necessary.
Stockpiles	• To be sealed or sprayed as required. • Location of stockpiles away from any sensitive receptors.
Dust Suppression	• Mobile bowsers to be deployed on site at regular intervals. Activity to be increased during significantly dry and windy periods. • Appropriate hoardings shall be provided around the whole working area to ensure reduction in dust migration. • Deliveries of significantly dusty materials to be sprayed to reduce dust potential. • All cutting and grinding operations to be conducted in ways to reduce risk of dust migration (wet cutting techniques etc). • Site preparation: - Appropriate hoarding shall be provided around the whole working area to reduce dust dispersion; - The name and contact details of person(s) accountable for air quality pollutant emissions and dust issues shall be displayed on the site boundary; - Hoardings, fencing, barriers and scaffolding shall be regularly cleaned using wet methods (not blowing with compressed air lines) to prevent re-suspension of particulate matter. - All the appropriate spill kit cleans up and containment materials shall be available in strategic locations on site and they shall be utilized immediately in the event of a spillage occurring; - A stakeholder communications plan shall be developed and implement, including community engagement before work commences on site. • On-site activities: - Dust producing plant shall be kept as far away as possible from sensitive areas (and may be screened). A physical distance and/or barrier shall be created between dust/emission generating activities and receptors; - Stockpiles shall be covered or seeded to prevent wind whipping, and loose materials shall be removed as soon as possible; - The materials with the potential to produce dust (i.e. sand and other aggregates) shall be kept away from working area boundaries and shall be ensured that are stored in bunded areas and are not allowed to dry out unless required for a particular process and other control measures are in place; - Where practicable, re-fabrication, fabrication and dismantling of materials and machinery shall be encouraged to be undertaken off-site to reduce the need for grinding, sawing and cutting on-site. In cases where such work must take place, water-based dust control shall be used. - The site shall use cutting, grinding or sawing equipment fitted, or in conjunction with, suitable dust suppression techniques such as water sprays or local extraction; - The site shall implement the use of water to effectively suppress dust emissions;

	- An adequate supply of water shall be available at all work areas for dust suppression measures. Where practicable, used water shall be collected and reused to maximize the use of recycled and non-potable water; - All dust control equipment shall be maintained in good condition and a record of maintenance and servicing activities shall be kept; - Dust control will be maintained using sprinkler systems, and localised measures eg vacuums and wet cutting; - Drop heights shall be minimised from conveyors loading shovels, hoppers and other loading (lorries, etc.) or handling equipment, and fine water sprays shall be used on such equipment; - The site shall provide enclosing chutes and/or conveyors. The site shall use enclosed conveyors where crossing roads, other public areas and property which is not ownership or control by the site. Loaded bins and skips shall be sheeted or otherwise enclosed; - The movement of delivery materials shall be handled in a manner which minimises dust production and disturbance; - The burning of material on site shall be strictly prohibited; - The site shall use enclosures or shield areas designated for mixing large quantities of cement, bentonite, grouts and other similar materials. The location of designated areas for mixing these materials shall be remote from the site boundary and potential receptors; - The site shall ensure that bulk cement and other fine powder materials shall be delivered in enclosed tankers. For construction, for smaller supplies of fine
Respiratory Protective Equipment (RPE)	• Some work activities may result in harmful substances contaminating the air in the form of dust, mist, gas or fume. Adequate and suitable RPE will be selected to ensure the wearer is protected. For example when: cutting a material such as stone or wood, using a product containing volatile solvents, handling a dusty powder. • Two main types of RPE are respirators (filtering devices) and breathing apparatus. • Respirators must not be used in oxygen-deficient atmospheres. • RPE is the last line of protection and all other control measures should be in place. • RPE needs to be worn correctly and stored, cleaned and checked regularly to ensure it remains effective. • Face-fit tests will be carried out to ensure correct size is selected for the wearer. Site will have personnel trained to carry this out. • Ensure the assigned protection factor is above the calculated value – checking the SDS.

Dust Inspection & TBTs	• All employees shall be provided with an appropriate induction and ongoing briefings and tool box talks (TBT) regarding management of environmental issues (ie. dust mitigation measures required from the works they are carrying out, etc.); • Weekly dust site inspections shall be carried out to monitor compliance with air quality and dust control procedures, and to monitor site outside the work site; • Records of inspection results shall be maintained within the respective site offices, and make available to the local authority when asked; • When activities with a high potential to produce dust and emissions are being carried out during prolonged dry or windy conditions, daily dust inspections at the boundary of such activities shall be completed to ensure dust and emissions are controlled; • Record any exceptional occurrences causing dust episodes on or off the site and the action taken to resolve the situation; • In the event of non-compliance with the agreed thresholds, obvious visual impacts and/or complaints, the following measures shall be implemented: Immediately undertake an investigation of activities on site to ascertain whether any visible dust is emanating from the site or activities are occurring that are not in line with dust control procedures; If on-site sources are identified as breaching the agreed thresholds, the relevant activities shall be rectified and/or suspended where practicable until remedial measures can be implemented; Actions shall be recorded in a site logbook; The activity shall then be monitored to ensure that the mitigation measures are working ad that there is no repeat incident; If the cause of the alert is not related to site operations, the outcome of any investigations shall be recorded in the site logbook.
Monitoring	• Noise and dust monitors will be installed along the perimeter of the hoarding. • Ongoing visual monitoring to be undertaken by site personnel on regular basis, both on and off site to ensure no migration of dust • Regular liaison with the Council's EHO and Client to be undertaken throughout the project • Regular reviews of mitigation methodology to be undertaken by Environment Manager and Project Manager

5.3 Noise and Vibration

Noise and vibration will be managed by applying best practicable means as defined under Section 72 of the Control of Pollution Act (COPA) 1974, to all activities, including the following:

- Carefully select equipment and construction methods to reduce noise and vibration.
- Use of hoardings or screens as noise barriers.
- Locate plant as far as reasonable practicable from receptor.
- Ensure that plant is shut down when they are not in use.
- Construct temporary infrastructure (e.g. haul roads) of materials that minimise noise and vibration.
- Monitor the noise levels regularly to confirm the noise level of site activities.
- Include noise minimisation practice in induction.
- Liaise with the community to provide information of the noisy work activities and their durations.
- Arrange delivery times to suit the area.

Specific requirements will be outlined in the Section 61 once granted by London Borough of Haringey Council.

Table 1: Ambient noise levels measured during unattended survey

Date	Daytime (07:00 – 23:00) $L_{Aeq, 16h}$ dB	Night (23:00 – 07:00) $L_{Aeq, 8h}$ dB
Thursday 11th January	-	61
Friday 12th January	65	61
Saturday 13th January	65	61
Sunday 14th January	63	62
Monday 15th January	65	60
Tuesday 16th January	-	-
Average	65	61

Attended sample measurements were also undertaken to determine the existing noise levels from road traffic, pedestrians and other significant noise sources in the area. Measurements (L1 – L5) were undertake for the Island Sites on 11th, 16th and 22nd January 2018.

The dominant noise source observed at the Site during the surveys was noted to be road traffic along nearby roads which are relatively heavily trafficked carrying cars, buses, lorries and emergency vehicles throughout the day and night.

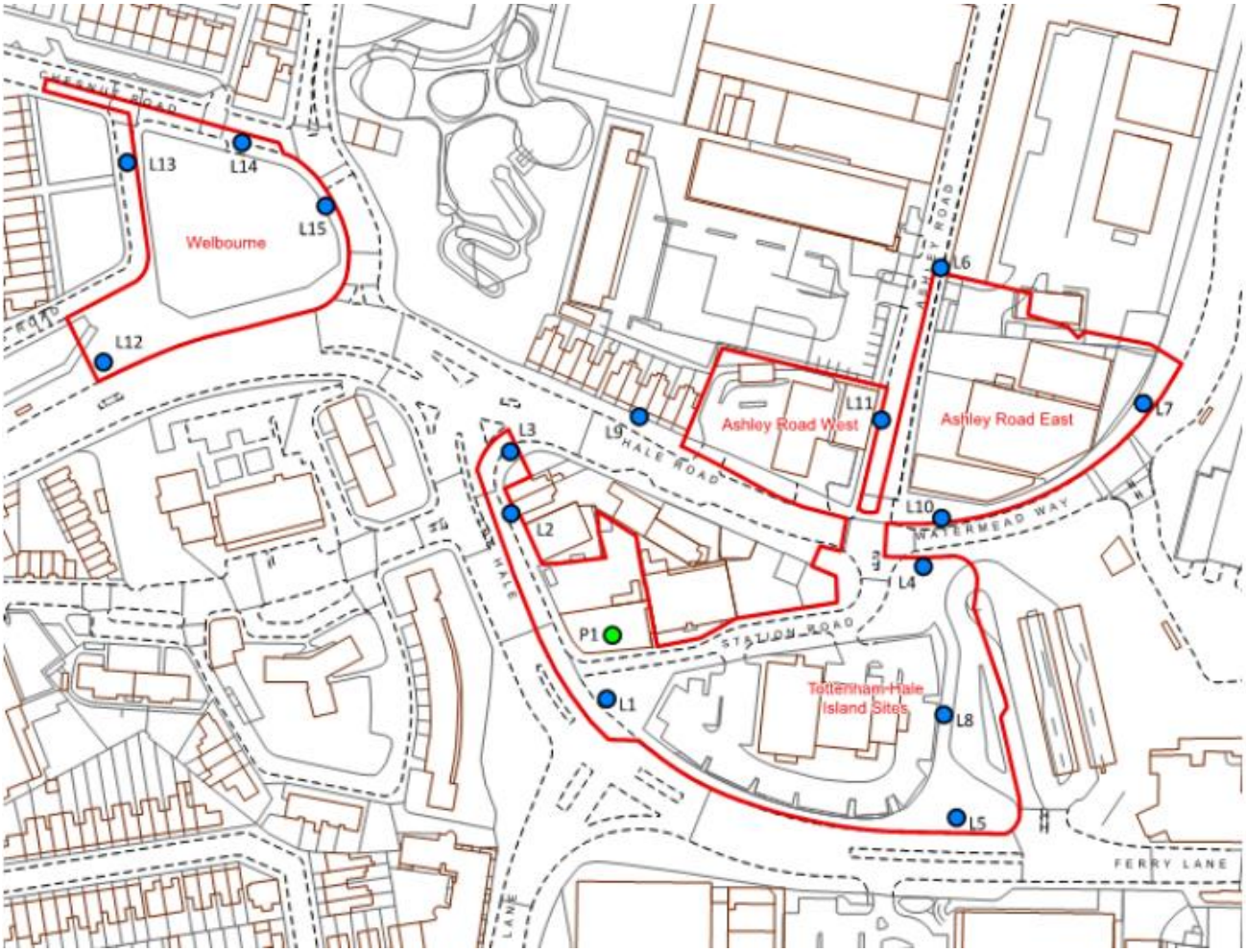


Figure 2: Attended Noise Sample Measurement Locations

The representative background sound levels from the unattended measurements were $L_{A90,\,15min}$ 58 dB during the day, and $L_{A90,\,15min}$ 49 dB during the night. Attended sample measurements indicate that typical background sound levels are the Island Sites vary between L_{A90} 58-65 dB (daytime) and L_{A90} 48-61 dB (night time).

Midgard will work towards a daily average (10 hour) noise level of 75 dB $LA_{eq,\,T}$ in line with best practice during the construction phase, aiming for no one hour periods to raise above 80 $LA_{eq,\,T}$.

The full programme length for the project is 148 weeks. Midgard have split this into key areas of development works:

- Enabling work – 13 weeks
- Substructure - 40 weeks
- Superstructure – 55 weeks
- Façade installation - 69 weeks
- Fit-Out - 87 weeks

The types of plant and machinery that are likely to be used on-site per development works activity are included in the below table. The noise levels have been taken from BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites.

	Assumptions: BS 5228 Noise Level dB(A) @10m	Percent on-times assumptions
Groundworks		
Excavator	75.0 dB(A)	30%
Generator	73.0 dB(A)	100%
9T Dump truck	79.0 dB(A)	20%
20T Tracked excavator	74.0 dB(A)	30%
7T Roller	68.0 dB(A)	30%
Concrete mixing	77.0dB(A)	60%
Concrete pump	78.0 dB(A)	30%
Deliveries and muck away	78.0 dB(A)	20%
Superstructure		
Poker Vibrator	76.0 dB(A)	40%
Petrol Saw	86.0 dB(A)	5%
50T Mobile Crane	84.0 dB(A)	60%
Concrete mixing	77.0 dB(A)	60%
Concrete pump	78.0 dB(A)	50%
Deliveries	78.0 dB(A)	20%
Hand tools and material handling	77.0 dB(A)	5%
Scaffolding		
Fork lift	76.0 dB(A)	20%
Deliveries	78.0 dB(A)	20%
Hand tools and material handling	77.0 dB(A)	5%
Roof Works		
50T Mobile Crane	84.0 dB(A)	40%
Fork lift	76.0 dB(A)	20%
Petrol Saw	86.0 dB(A)	5%
Deliveries and muck away	78.0 dB(A)	20%
Hand tools and material handling	77.0 dB(A)	5%
Façade		
Fork lift	76.0 dB(A)	20%
Chop Saw	78.0 dB(A)	5%
Deliveries	78.0 dB(A)	20%
Hand tools and material handling	77.0 dB(A)	5%
Externals		
Excavator	75.0 dB(A)	30%
Generator	73.0 dB(A)	100%
9T Dump truck	79.0 dB(A)	30%
20T Tracked excavator	74.0 dB(A)	30%
7T Roller	68.0 dB(A)	30%
Concrete mixing	77.0 dB(A)	60%

Concrete pump	78.0 dB(A)	50%
Deliveries and muck away	78.0 dB(A)	20%

Midgard will carry out 24-hour noise and dust monitoring using Class 1 noise monitors, situated across the development. This data will be reviewed regularly by the Environmental Manager and shared with the site management team. Notifications will be sent to the Environmental Manager and site team when exceedances occur. This allows the team to temporarily stop noisy works and review the noise levels and works being carried out. Using our noise monitoring data, we will undertake noise modelling to predict noise levels at the sensitive receptors highlighted in section 5.0.



Figure 3: Preliminary current noise modelling with key sensitive receptors

Midgard will commit to suitable limits for dust once background dust monitoring has been carried out. Midgard will have noise and dust monitors on site at minimum 2 weeks prior to works commencing.

To mitigate noise levels, the Midgard team will:

- Use temporary screens during construction activities which are taking place within close proximity to noise sensitive receptors.
- All machinery will be regularly maintained to control noise emissions, with particular emphasis on lubrication of bearings and the integrity of silencers.
- Site staff will be made aware that they are working adjacent to a sensitive area and avoid all unnecessary noise due to misuse of tools and equipment, unnecessary shouting and radios.
- As far as possible, the avoidance of two noisy operations occurring simultaneously in close proximity to the same sensitive receptor.
- Ensure engines are turned off when possible.

- Where reasonably practicable, plant and or methods of work likely to cause significant levels of vibration at the receptors identified will be replaced by less intrusive plant/methods of working.

Site construction methods will take into account the need to minimise vibration and be based on best practice industry practices. In the phases of works where vibration due to site activity is not anticipated and no monitoring is deemed required, Midgard will make provisions to ensure monitoring can be set up to investigate reasonable complaints from the neighbourhood.

5.4 Light Disturbance

The surrounding vicinity to the site currently creates a significant amount of light pollution. Any further task lighting required on the project is not expected to cause a nuisance. All task lighting, however, will aim to minimise the impacts of light spillage on adjacent retained habitats as far as reasonably practicable by ensuring any security lighting that is left on overnight is kept to a minimum and away from any sensitive receptors. Lighting will be timed to be off outside of normal working hours.

6.0 Waste Management System

A Resource Management Plan will be completed when we confirm our waste management suppliers. It will contain:

- Procedures and commitments for minimising non-hazardous waste
- Procedures for minimising hazardous waste
- Procedures for monitoring, measuring and reporting hazardous and non-hazardous site waste
- Procedures for sorting, reusing and recycling construction waste into defined waste groups, either on site or through a licensed external contractor
- The name or job title of the individual responsible for implementing the above
- Identification of the key refurbishment/demolition materials.
- Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials.
- Target of > 90% (by tonnage) of non-hazardous construction waste shall be diverted from landfill

6.1 Disposal of Non-Hazardous Waste

All non-hazardous waste will be removed from site within strict adherence to all waste legislation requirements, including Duty of Care Regulations. Prior to any agreed use of hauliers or waste disposal sites, the appropriate licences will be thoroughly checked to ensure that particular waste streams can be accepted and carrier licences are valid. This can only be undertaken by authorised personnel and copies of all necessary licences must be retained on site at all time and reviewed for expiry. No waste will leave site without appropriate waste transfer notes. It is essential that all waste transfer notes are inspected for detail and must contain the correct description of waste as well as the correct waste code, in line with the List of Waste Codes Regulations.

6.2 Disposal of Hazardous Waste

The Project Manager will ensure that the hazardous waste is segregated, stored safely and that measures are implemented to avoid contamination of other waste. This will be achieved using Powerday's mixed COSHH

bins or "Hazibags" which are flexible intermediate bulk containers (IBC) which is UN approved for Packing Groups II and III. No hazardous waste will leave the site without the correctly completed Consignment Note. The consignment notes must contain all necessary information including waste description and hazardous waste registration number. Any carriers removing hazardous waste must have appropriate licences and disposal sites must be verified to be able to accept waste being sent. These checks and signing of consignment notes can only be undertaken by authorised personnel. All hazardous waste must be stored on site in appropriate, covered or locked skips. No mixing of hazardous and non- hazardous waste is authorised.

In both instances above waste disposal options will look to ensure minimal transportation requirements where financially viable.

6.3 Waste Reporting, Records and Location

All waste transfer / consignment notes will be held on site throughout the duration of the project. It is a legal requirement for all WTNs to be kept for a minimum of two years and WCNs for a minimum of three years. Each waste transfer will be fully documented and the Resource Management Plan updated accordingly with waste carriers and disposal details.

7.0 Water

Erection of concrete structures during the construction will be monitored to prevent associated contaminated material entering any watercourses. Pre-cast work or permanent formwork will reduce the amount of in-situ concreting required. Washing out of concrete wagons or other equipment used in concreting operations will be undertaken in designated contained washout areas. These will be located away from all watercourses and drains and will be impermeable to prevent infiltration to ground.

Where stockpiles have to be located with a direct path to a watercourse a bund will be in place to reduce all pollution risks.

The positioning of fuel storage tanks and other potentially polluting materials and maintenance/refuelling facilities will be on bunded areas of hard standing with dedicated drainage systems. All fuels and oils will be secured within a bunded area and the secondary containment system must provide storage for at least 110% of the tank's maximum capacity. Stored materials on site will be checked regularly for containment integrity (both primary and secondary), quantity stored and security of storage.

Spill kits will be made available, and site operatives trained in their use, to deal with any spillages. All spill kits will be fully stocked and kept dry at all times.

8.0 Transportation and Traffic Management

The Construction Design and Management Regulations 2015 Regulations 17, 27 and 28 states that it is the responsibility of the Principal Contractor, for controlling the access onto site, vehicles, the boundary of the site and the security and the traffic routes. This project will have a Traffic Management Plan, which will have a review process at the appropriate times and continue to be a live document throughout the many changing faces of this contract

The main aim of the regulations is to ensure that by giving adequate consideration to the use of and the movement of vehicles and pedestrians at the planning stage, many of the risks posed by site traffic can be minimised or avoided. This plan will also be cross-referenced in other documents such as the:

- Traffic Management and Logistics Plan
- Construction Phase Health & Safety Plan

- The Fire and Emergency Plan.

A traffic management plan has been implemented on the site. The plan outlines timings of deliveries and routes to be taken by hauliers and workers to ensure minimal disruption to local residents and businesses. This will include potential risk for noise disturbance as well as minimising additional traffic during peak periods.

We are committed to encourage our employees to utilise active travel methods and to not travel via private car to work. There is no parking available in the nearby roads (adjoining the site) for any construction traffic related to the site.

8.1 Traffic Routes

The traffic management plan requires that the works will be organised in such a way that the traffic routes are suitable for the passage of vehicles using them with regard to locations and width of lanes.

Traffic routes will not be approved unless:

- Vehicles can use the traffic route without causing danger to themselves or other road user.
- Pedestrian access or egress is sufficiently separated from vehicle routes as will enable the pedestrian to see any approaching vehicle or plant.
- There is sufficient separation between vehicles and pedestrians, or where this is not reasonably practicable or in an emergency there are other means for the protection of pedestrians;
- There are effective means of warning of the approach of any vehicle.

All vehicular traffic will approach the project from the North along the A406 (North Circular), then down Watermead Way as the artery into the project area, partially on The Hale and then onto Ferry Lane to access the pit lane.

8.2 Vehicles

Any vehicle being used for construction work will:

- Be driven in a manner that is safe.
- Be loaded in a way that it can be driven, operated or towed safely.
- Have suitable steps taken to prevent unintended movement of the vehicle.
- Have the person in control of the vehicle the capability to give adequate warning to any person liable to be at risk from the movement of the vehicle.
- Be fully aware of weight restrictions and exclusion zones on the site.
- Be fully aware of the TM plan speed restrictions on approach to the site and speed restriction on site - 5mph.

To that end no person shall;

- Be allowed to ride on, or in a vehicle unless a proper place has been provided for that purpose.
- Be required or permitted to remain on any vehicle during the loading or unloading of any loose material, unless a safe place has been provided for that purpose.

Where any vehicle is being used in the proximity of any excavation, pile-bores, edge of ramp or embankment, suitable and sufficient measures will be taken to prevent the vehicle overrunning the edge or falling in the bore.

All vehicles will comply with the rules of London's Ultra Clean Emission Zone. Vehicles which don't meet the criteria will be charged. All JRL vehicles will comply with the following criteria:

- Diesel – Euro 6 (VI) standard or better (roughly end of 2015 onwards);
- Petrol - Euro 4 standard or better (roughly 2006 onwards);
- Gas – Euro 6 (VI) standard or better;
- Fully electric or hydrogen fuel cell – all are compliant and avoid CAZ charges;
- Hybrid electric – the diesel/petrol engine must meet the relevant criteria above.

Vehicles delivering to site should be a minimum of FORS Silver.

Anticipated traffic movements will vary throughout the programme period, as will the size and type of vehicle. As a general rule the number and size of vehicles will be greater during the earlier phases of the project whilst our scope of the ground and structural works are underway. Traffic will decrease as the internal and finishes works are carried out.

Table 2: Anticipated Vehicle Movements

Construction Phase	Programme	No. of Trips (Monthly)	Peak no. of Trips (Daily)
Site Setup	Q3 2022 – Q4 2022	550	25
Basement Excavation and Piling	Q3 2022 – Q1 2023	1,400	64
Substructure	Q1 2023 – Q3 2023	1,400	64
Superstructure	Q2 2023 – Q4 2025	1,300	59
Façade	Q1 2024 – Q3 2025	700	32
Fit-out, Testing and Commissioning	Q2 2025 – Q4 2025	700	32

8.3 Site Entrances and Security

There will initially be one access gate to Ferry Lane. Approval in principle has been granted to install a pit lane on Ferry Lane. Site will utilise 2 no. access and 2 no. egress gates during the build programme.

In addition the pedestrian access to the site is via a separate entrance gate with biometric controlled turnstiles. The pedestrian entrance will always be as close as possible to the welfare facilities to allow a safe access to these facilities for the operatives to change and ensure they have the correct Personal Protective Equipment on prior to entering the site itself. At the site entrance any visitors will be ushered through a safe segregated walkway to the site offices to meet with the site management for a site induction.

The site boundary will be secured to prevent unauthorised access by a plywood hoarding of a surface density of no less than 7 kg/m^2 of 2.4m high. Consideration will be given to the location of climbing aids, such as street furniture and utility boxes and hoarding extended where required. Hoarding licences will be obtained from London Borough of Haringey Council. Where hoarding creates poorly lit walkways, Midgard will install bulkhead lights.

The gates will be controlled all the time via the Gatemen/Traffic Marshals. When the gate is not in attendance then the gates shall be closed.

8.4 Logistics and Delivery

All delivery vehicles will drive into site with the assistance of the traffic marshal to the designated loading/unloading area. Traffic marshals will halt pedestrians and cyclists while vehicles are entering and leaving the site. Once the vehicle is unloaded or loaded, the vehicle will leave site under the Traffic Marshal's guidance.

As a general rule, construction vehicles will only be allowed to park on site for the purposes of loading and unloading. The Traffic Marshal will be responsible for the control and coordination of all aspects of material deliveries and movement. Tower cranes may be utilised to facilitate easy and quick unloading of delivery vehicles.

When vehicles are entering or leaving the site, these will be supervised by a Traffic marshal. With regard to cyclist safety, our banksman will pay special attention to any pedestrians or cyclist when vehicles are moved onto or off the site.

Mud and debris on the road is one of the main environmental nuisance and safety problems arising from construction sites. Midgard will make provisions to minimise this problem. In the early stages of the project when ground works are being carried out, the area outside the vehicle gates will be constantly swept and washed down. If necessary jet washers will be used to wash down all vehicles that enter/leave the construction site. We will also make provision for cleaning the adjoining roads daily and as required by an approved road sweeper. We will insist on all muck away lorry's be fully sheeted to minimise the risk of any mud over-spilling onto the highway.

We will consider spraying a fine spray to suppress dust on the following:

- Unpaved areas that are subject to traffic or wind.
- Sand, spoil and aggregate stockpiles.
- During loading/unloading of dust generating materials.

Key phases of the logistics plan are shown in figures 4, 5, 6, 7 and 8 below.



Figure 4: Site Logistics Plan - Weeks 1-4



Figure 5: Site Logistics Plan - Weeks 23-27



Figure 6: Site Logistics Plan - Weeks 47-64



Figure 7: Site Logistics - Week 135

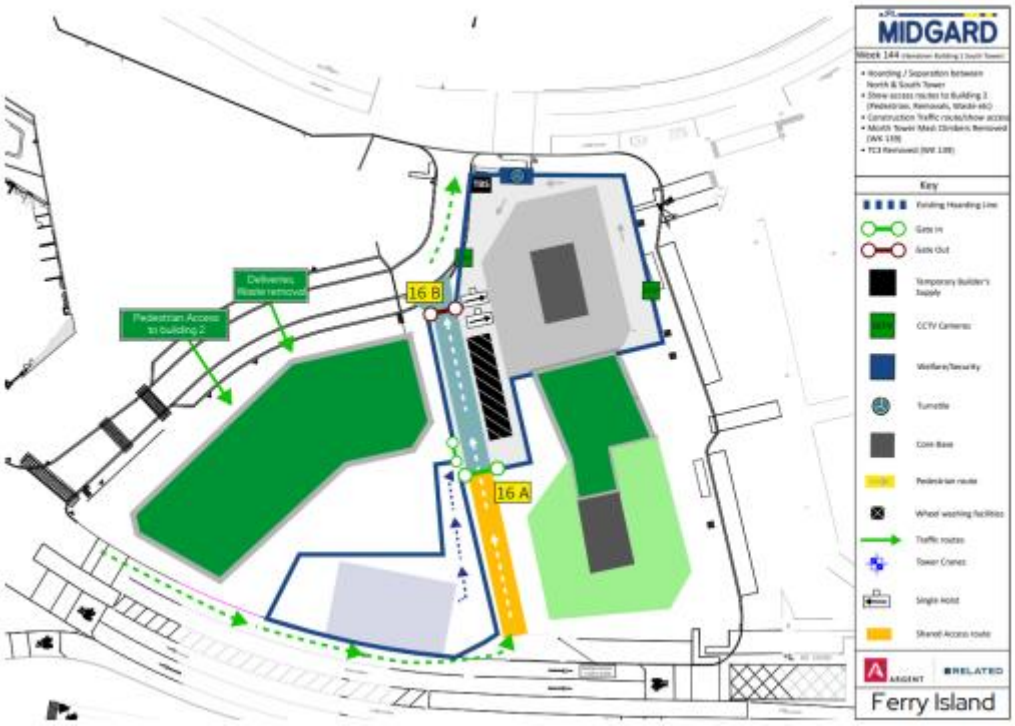


Figure 8: Site Logistics Plan - Week 144

8.5 Delivery Management System

Datascope, a site wide electronic delivery management system will be used on this project. All deliveries will be booked in advance so that they are timed to prevent a backlog of vehicles and disruption to surrounding area. Traffic Marshals will make sure, as far as practical that only booked deliveries to site are accepted and any vehicles attempting to deliver without complying with this system will be refused access, within reason.

All plant deliveries will be coordinated to be delivered out of peak times, whenever practical, to avoid any congestion and to avoid key operational periods. This policy will be communicated to our supply chains and we will check compliance with these procedures and follow up with any sub-contractors and suppliers who fail to adhere to these rules.

The delivery of all materials, plant and equipment will be pre-planned and arranged with designated times of the day according to the construction programme to minimise the impact on the local area. Vehicles will not be permitted to enter the Site before 8am, unless a specific requirements are in place, for example large abnormal loads. All goods deliveries will be to designated areas on Site where all vehicles will be unloaded with the materials taken to the appropriate storage area immediately.

8.6 CLOCS Champions and FORS

The JRL Group are committed to actively promoting and implementing the Construction Logistics and Community Safety (CLOCS) standard as CLOCS Champions. As both a principal contractor and fleet operator, we want to develop and implement the safest site and minimise the impact on the community. Site-specific Construction Traffic Management and Logistics Plans are created with each phase of the build sequence taken into account. At each phase we ensure stable loading/unloading areas, competent traffic marshals and a safe and suitable 'last mile' route. Our logistics teams on site complete gate checks of vehicles

and their drivers to monitor compliance against the CLOCS standard. The JRL Group fleet is also accredited to FORS Gold.

Primary goals of the CLOCS standard:

- Zero collisions between construction vehicles and the community
- Improved air quality and reduced emissions
- Increased efficiency
- Fewer vehicle journeys
- Reduced reputational risk

8.7 Construction Worker's Travel Plan

A robust, realistic and achievable travel plan is considered crucial in encouraging sustainable travel choices by those visiting the site. The aims of the Construction Worker's Travel Plan are to consider the safety and travel patterns of other road users and pedestrians and ensure the environmental and highway capacity impact is minimised. Reducing single occupancy private vehicle trip will support the mitigation of potential impact on the temporary increase in the number of traffic movements on the local road network during construction.

During peak travel workers on site will in large be travelling during the peak hours of 6:30 to 8:30 and 17:00 to 19:00 Monday to Friday.

Midgard are committed to encourage our employees to utilise active travel methods and to not travel via private car to work. There is no parking available on site or in the nearby roads (adjoining the site) for any construction traffic related to the site.

The development is well served by public transport, achieving a PTAL rating of 6a, with convenient access to, London Underground, Network Rail services, London Overground and a number of bus services, it is therefore expected of our workforce to utilise these.

- Tottenham Hale Underground – 170m away
- Tottenham Hale Station – 200m away
- Bruce Grove – 1000m away

Safe and secure cycle parking will be provided to promote cycling to work. There are several local roads which have been designated by TfL as roads which are appropriate for use by cyclists including Cycleway 1 and Cycleway 24.

Information on active travel methods will be shared with the workforce during the site's induction and site notice boards.

To enable specific actions to be monitored, travel surveys will be undertaken to monitor the effectiveness of the plan and to evaluate changes in travel patterns.

8.8 Non-Road Mobile Machinery (NRMM)

Similarly to the Ultra-Low Emission Zone, the Non-Road Mobile Machinery (NRMM) low emission zone requires that all engines with a power rating between 37kW and 560 kW meet an emission standard based on the engine emission "stage". The power rating can be found on the machine's Vehicle Identification Number (VIN) plates.

NRMM requirements will be met to Stage IV or above. Records will be retained by the Environmental Advisor and reported on the Mayor of London's NRMM portal.

Machines that are not staying on-site for more than 5 days, do not need to be registered. These 5 days are cumulative until the end of the project's duration.

NRMM is defined as any mobile machine, item of transportable industrial equipment, or vehicle (with or without bodywork) that is:

- Not intended for carrying passengers or goods on the road
- Installed with a combustion engine – either an internal spark ignition petrol engine or a compression ignition diesel engine.

Typical machinery required to be registered include:

- Excavators
- Dumpers
- Piling rigs
- Generators
- Mobile cranes
- MEWPs
- Static pumps
- Compressors
- Telehandlers

The plant ID and engine Type Approval Number (TAN) is required for logging the machine on the NRMM portal.

Where an emergency arises on site (eg. site flooding) a short term exemption can be applied for enabling non-compliant NRMM to remain on site for up to 30 days.

9.0 Land Contamination

Where there is potential for contaminated materials to be removed from site, stockpiling of such material will be kept to a minimum and the storage area must be secure to ensure it does not pose risk of leaching into any water courses. When disposing of any contaminated wastes, carriers and disposal sites must be verified for the type of waste stream prior to any removal being undertaken. Prior to any soils being removed from site, a comprehensive test will be carried out to determine whether the soils are inert/hazardous or non-hazardous. The results of this testing will determine which disposal route is most appropriate.

9.1 Planning Conditions

The development works will comply with the requirements of the contamination-related planning conditions (HGY/2018/2223) –

Condition B19:

"The Plot B development hearby permitted may not commence, other than for investigative work, until a monitoring and maintenance plan in respect of contamination within Plot B, including a timetable of monitoring and submission of reports to the Local Planning Authority, has been submitted to and approved in writing by, the Local Planning Authority. Reports as specified in the approved plan, including details of any

necessary contingency action arising from the monitoring, shall be submitted to, and approved in writing by, the Local Planning Authority."

Condition B20:

"If during development, contamination not previously identified is found to be present as Plot B then no further development in respect of that Plot (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved within Plot B."

Condition B24:

a) "Using the information obtained from the previous assessments, an additional site investigation, sampling and analysis shall be undertaken at the Plot as appropriate. The investigation must be comprehensive enough to enable:
   i. A risk assessment to be undertaken
   ii. Refinement of the Conceptual Model
   iii. The development of a Method Statement detailing the remediation requirements
b) If the risk assessment and refined Conceptual Model indicate any risk of harm, a Method Statement detailing the remediation requirements is respect of the Plot, using the information obtained from the site investigation, and also detailing any remedial monitoring shall be submitted to, and approved in writing by, the Local Planning Authority prior to that remediation being carried out on the Plot."

Condition B25:

"Where the contaminated land condition above demonstrates that remediation of contamination on the Plot is required, completion of the remediation detailed in the Method Statement shall be carried out and a report that provides verification that the required works have been carried out, shall be submitted to, and approved in writing by the Local Planning Authority before the development is occupied within Plot B."

9.2 Ground Conditions

The geology of the area comprises Made Ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

9.3 Contamination

9.3.1 Soil

There was no olfactory or visual evidence of contamination in the soil samples inspected. The test results indicated that concentrations of metals and inorganics are generally within the range that would be expected for general Made Ground with some localised elevated lead results.

9.3.2 Groundwater

Due to the Ferry Island plot being in use by two food outlets and an electronics retailer the investigation was limited to a single borehole FI-BH03 which was installed with a shallow groundwater/gas monitoring standpipe. Elevated concentrations of chlorinated hydrocarbon volatile organic compounds (VOCs) and ammonia were identified within the single groundwater sample taken from FI-BH03. The concentrations of VOCs identified could present a risk to human health via the vapour inhalation pathway and to groundwater

receptors. The source of the contamination was unknown. Additionally a concentration of lead in Made Ground exceeded the generic assessment criteria for public open space. The presence of existing infrastructure restricted the number of exploratory holes that could be drilled at the time.

9.3.3 Ground Gas Monitoring

Ground gas monitoring results would place the plot into Characteristic Situation (CS1) which would not require gas protection measures to be installed.

9.3.4 Existing Below Ground Structures

During investigations, two boreholes EBH105 and EBH 105A were aborted at 1.10m and 0.45m depth respectively due to presence of concrete and steel tank obstruction. Two underground storage tanks, assumed to be associated with the former garage onsite were uncovered. It is understood that they could not be removed due to their location and remain in-situ. The presence of these existing below ground structures and infrastructure may have implications for the development and should be appropriately investigated and removed.

9.4 Verification

9.4.1 Watching Brief

It is expected that a watching briefed will be maintained in order to address previously unidentified contamination.

9.4.2 Imported Top Soil

A clean fill (minimum 600mm thickness) with a geotextile liner should be used in all areas of sift landscaping with verification testing provided for the O&M manual.

9.5 Environmental Management during Remedial Works

Measures to prevent the emission of contamination to air and into the wider environment to include (but not limited to):

- Damping down of dry soils/Made Ground materials;
- Odour suppression as necessary during excavation of potentially contaminated materials – damping down and / or misting as appropriate;
- Asbestos in air monitoring during earthworks (including boundary and personal monitoring);
- Use of a wheel wash or road sweeper to address mud on roads;
- Control of water including surface water run-off and water in excavations to prevent escape to adjacent properties and/or watercourses;
- Operation of works only within the times permitted under the planning permission; and
- Details of incident recording procedures.

9.6 Addressing Previously Unidentified "Hotspots" of Contamination

Should an area of contamination be identified by visual or olfactory means during development works, the following procedure shall be followed:

- Immediately stop all works in the area where contamination is suspected
- Immediately inform the Project Manager who should then contact the Environmental Manager and Environmental Consultant
- The Environmental Consultant shall provide a verbal response outlining immediate actions with regard to Site Health and Safety and to limit the potential for contaminants to migrate
- The Environmental Consultant shall judge each occurrence on merit and should it be deemed necessary the Environmental Consultant shall attend Site to oversee the removal of the 'hotspot' and collect validation samples
- Any excavated material should be isolated from all other material at the Site, on plastic sheeting and covered with plastic sheeting until the material can be tested for contamination and an appropriate disposal route can be identified
- Any 'hotspot' stockpiles and excavations should be fenced off, have appropriate signage and their locations recorded on a Site drawing
- Should any excavated material be required to be disposed of at an off-Site location, the material shall be isolated from all other material at the Site prior to disposal at a suitably licensed facility. All documentation associated with the movement and disposal of any such material shall be supplied to the Environmental Consultant shall, including waste transfer documentation;
- Subject to appropriate Site Health & Safety controls (typically comprising fencing off the excavation) the excavation will remain open until the validation has been completed. Alternatively, for Site Health & Safety reasons, it may be necessary to backfill the excavation with Site derived material. In this case, the location of the excavation will be accurately recorded and the excavation reopened if required, based on the validation results
- The Regulatory Authorities shall be informed by the Environmental Consultant shall of any remedial activities required and associated validation testing results. Representatives of these organisations may also wish to visit the Site.

9.7 Unexploded Ordnance (UXO)

Buried UXO can present a significant risk to construction works. The discovery of a suspect device during works can cause considerable disruption to operations. UXO in the UK can originate from three principle sources:

1. Munition resulting from wartime activities including German bombing in WWI and WWII, long range shelling and defensive activities
2. Munitions deposited as a result of military training and exercises
3. Munitions lost, burnt, buried or otherwise discarded either deliberately, accidentally or ineffectively.

The site has moderate risk. Site specific UXO awareness briefings will be given to all personnel conducting intrusive works. If unexploded ordnance is discovered, works should stop immediately, prevent access to the area and inform the police.

10.0 Wildlife and Natural Features

The protection of the wildlife and natural features must be adopted on site to ensure that construction activities cause the least damage to the surrounding natural environment. Our Project Team will:

- Liaise with subcontractors to ensure that their activities will not be damaging the flora and fauna on site.
- If protected species are discovered during construction, work will be stopped immediately.
- When trees are found on site, Tree Preservation Order (TPO) is applicable.

10.1 Designated Sites

10.1.1 Statutory Designated Sites

There are four sites with European or National statutory designation and one Local Nature Reserve within 2 km of the site:

- Lee Valley SPA located 0.8 km to the east
- Lee Valley RAMSAR site located 0.8 km east
- Walthamstow Marshes SSSI located 0.8 km east
- Walthamstow Reservoirs SSSI located 0.8 km east
- Springfield Park LNR located 1.8 km south

10.1.2 Non-statutory Designated Sites

There are twenty-one non-statutory designated sites within 2 km of the site. The two closest non-statutory designated sites are:

- Tottenham Railside's SINC (Borough Grade II) located 0.3 km to the east
- Down Lane Recreation Ground Site of Importance for Nature Conservation (SINC Local) located 0.4 km to the north east.

10.2 Habitats

The site is situated in a highly urbanised environment with areas of mature broadleaved trees and juvenile saplings, tall ruderals, scattered scrub, amenity grassland, bare ground with built structures and hardstanding.

10.3 Trees

There are some off-site street trees immediately adjacent to ARE and to the rear of ARW that will be retained as part of the redevelopment. The retained trees will be managed during the construction period to ensure they remain safe. All works on site near trees to be retained will be to British Standard BS 5837: 2012.

10.4 Nesting Birds

Under Part 1 of the Wildlife and Countryside Act 1981, disturbance to nesting wild birds, their nests and eggs is a criminal offence. A wild bird is defined as any bird of a species which is resident in or is a visitor to the European Territory of any member state in a wild state. Appropriate steps must be taken by the developer and contractor to ensure nesting birds, their nests and eggs are not disturbed and are protected until such time as they have left the nest. The nesting season is normally taken as being from 1st March - 30th September.

10.5 Badgers and Other Wild Mammals

Measures should be implemented to safeguard wild mammals, including badgers, should they enter or utilise the site during the construction works, and to discourage wild mammals from entering the site. This can be achieved by implementing the following mitigation measures:

- Trenches or pits left overnight should be provided with a means of escape for wild mammals should they enter such as a collapsed edge or a flat roughened stable plant (no steeper than 45°) acting as a ramp to the surface.
- Pipes should be capped off overnight to prevent animals entering and becoming trapped.
- All trenches and pits will be inspected each morning to ensure no wild mammals have become trapped overnight. Should a badger become trapped in a trench it will likely dig itself into the side of the trench. Should a trapped badger be encountered, a suitably qualified ecologist should be contacted immediately for further advice.
- The prolonged storage of uncontained and uncovered topsoil in piles on site should be carefully considered and possibly fenced-off if needed as these are readily adopted by burrowing animals such as foxes (*Vulpes vulpe*) for dens.
- Chemicals should be contained in such a way that wild animals cannot access or knock them over.
- Fires should be avoided altogether within the site.
- Loose litter and food should not be left in accessible areas of the site overnight.

10.6 Bats

During both construction and operation, lighting has the potential to disturb commuting and foraging bats. Key considerations of bat sensitive lighting strategy will be:

- Type of luminaire – low pressure or high pressure sodium lamps have the lowest impact on the bats
- Avoidance of light spill – External lighting should only be used in areas where it is required for health and safety reasons. Hoods and cowls for lamps can be installed to focus light on areas where it is required
- Height of lighting column – in general, the lower the height of lighting columns, the lower the impact on foraging and commuting bats;
- Light levels – Lighting should be at the lowest levels allowed, whilst not compromising health and safety.

11.0 Resource Use

JRL Group in line with our Sustainable Procurement Policy and Sustainable Procurement Plan will ensure, where practicable, the use of recycled or sustainable materials sourced from a responsible source, where possible BES 6001 certified. Furthermore, in line with company protocol, all concrete should be obtained from a certified sustainable source, wood must have chain of custody documentation and be FSC/PEFC certified and steel should have CARES Sustainable Constructional Steel or similar certification.

There is little space on site for the storage of bulk materials, therefore deliveries will be scheduled on a "just-in-time" basis. A dedicated area will be maintained for storage of all materials and due care and appropriate

handling will be undertaken at all times to reduce any risk of damages and wastage. Packaging of items should not be removed until required, to ensure maximum potential for returning of unused goods.

Midgard will ensure the site maintains "good housekeeping" at all times during the construction process. This will include, but not limited to:

- Open fires are prohibited at all times
- Rubbish will be removed at frequent intervals with segregation of waste streams where possible
- Site will be kept clean and tidy
- Hoarding line will be inspected, repaired and re-painted as necessary
- Welfare facilities will be kept clean with canteen/food waste disposed of within a covered skip
- A smoking and vaping area will be provided within the welfare area with suitable disposal facilities
- Public highways/pedestrian footpaths within the vicinity of site will be kept clean by use of jet washes and road sweepers
- Pest control if required.

12.0 Energy Consumption and Monitoring

The JRL Group seek to reduce the emissions of greenhouse gases from the construction process, and therefore look for ways to reduce energy use. Sources of emissions contributing to the JRL Group's carbon footprint include:

- Electricity supply for site accommodation and site works – temporary building supply (TBS) applied for at the earliest opportunity
- White diesel or alternative fuels used in site plant and generators (if required)
- Petrol and diesel used for commuting and business travel including transportation of plant and materials to site and collection of waste from the project
- Water supply and waste water treatment.

"Switch it Off" schemes and other energy saving campaigns shall be implemented on site to encourage all personnel to consider their carbon footprint. Use of car sharing and buses shall be encouraged as outlined in the CTMP. Posters shall be clearly displayed within the site offices to ensure all personnel are aware of the CTMP requirements. This shall also be covered within the site induction and regular toolbox talks held relating to the subject.

Data relating to the environmental KPIs (eKPIs) – electricity, fuel and water consumption is collected monthly and displayed on the environmental board in both technical and non-technical format.

13.0 Community Liaison

The Site Manager will take charge of all day to day liaisons, with further support from the health, safety & environmental team who will be on site on at least monthly basis. A quarterly newsletter, outlining progress, potential disturbances and contact details will be distributed to neighbouring properties, as well as displayed on the sites notice board. The site notice board will also display Contact details for the general public to be able to contact the contractor and ask questions, queries or file a complaint. Further letters will be delivered if any works are to be carried outside of normal working hours (as agreed with London Borough of Haringey Council) or are especially disruptive.

13.1 Complaints Procedure

A complaints procedure will be implemented across the site and will provide a mechanism for local stakeholders to raise the concerns about the project and to receive feedback once those complaints are investigated and closed out.

Midgard's site management team and the health, safety & environmental team will to work in collaboration with the Client and the local community. Contact details for the project's community representative will be made available on the site contact boards and regular newsletters.

Emergency out of hours contact will be the Project Director Donal Reale, 07787 515 097 and the onsite security.

When a complaint is received the following actions will be taken:

- All complaints must be forwarded to the health, safety & environmental team and to London Borough of Haringey Council as soon as they are received regardless of how they are received, the Environmental Protection team will be copied in to all complaints regarding noise, vibration, light and dust;
- The site's community representative will record complaints in a site complaint register and this will include time, date, complainant and nature of complaint, and the initial response;
- Where the complaint is in relation to noise, the works will be stopped immediately;
- The site's community representative will initially respond to the complainant within 24-hours of the complaint being raised;
- The site's community representative will review details of activities from the site logs/ from the area involved and this will include details of any site monitoring details from the environmental team;
- An initial root cause investigation will be undertaken with works restarted where the issue can be resolved immediately. Where this is not possible a revised plan of action will be initiated, which could include a modification of the task involved, a change in timing or the implementation of additional mitigation measures. Issues will be escalated to the Health, Safety & Environmental Director, Site Management and the Client where necessary; and
- The site's community representative will contact the complainant to describe what has been done and to check for further concerns.

If the complaint has been resolved, the complaint record will be closed.

The site management team and health, safety & environmental team will review the complaints register on a regular basis to identify any common trends as part of the overall environmental auditing process.

13.2 Considerate Constructors Scheme

The Site will be registered with the Considerate Constructor Scheme and through compliance with the 'Code of Considerate Practice' will develop sound relations with all stakeholders that may be affected by the work. The project is committed to achieving a score of 40+ in Considerate Constructors visits.

14.0 Site Environmental Documentation

All environmental documentation must be kept on site at all times and be available for inspection by internal and external auditors, as well as the client, council's environmental protection team and management. Where any document is amended, previous versions will be superseded and the Environment Manager notified. Site personnel will be made aware immediately, if any significant changes in works procedures are implemented.

Initial start-up documentation will include the following:

- Construction Environmental Management Pan (CEMP)
- Resource Management Plan (RMP)
- SHE 6E Site Managers Weekly Checklist
- Environmental Emergency Response Plan
- Aspects, Impacts, Risk and Opportunities Register

15.0 Auditing and Monitoring

A regular audit schedule will be set up at project start. This audit schedule will include both internal inspections and audits for the project. It is the responsibility of the site management to ensure all documentation and evidence required for audit purposes is kept up to date and freely available for inspection at all times.

A weekly site inspection using the SHE 6E Weekly Environmental Checklist will be carried out by a Site Manager to ensure environmental risks are being managed appropriately. A monthly scored audit will also be carried out by the Environmental Manager or HSE Manager/Advisor to ensure the Site Manager's inspections are being carried out correctly and the site's environmental performance is in line with company policy. The site environmental management system will be audited to the standards set out by ISO 14001: 2015.

Additional legal compliance audits will also be undertaken at inspection and audit. Any system failures will be documented and appropriate corrective actions issued and implemented. All documents will be filed and retained on site for auditing purposes. Any failure to undertake such monitoring will be deemed as a non-conformance with procedure and appropriate corrective action will be implemented. The action and time limit required shall be specified for each non-conformance and will be addressed as a matter of priority.

16.0 Training and Awareness

All personnel and subcontractors are selected by Midgard and the JRL Group with due consideration of qualifications and experience in line with the JRL Group Sustainable Procurement Plan and Policy. For all personnel, the baseline level of environmental awareness is initiated through the mandatory site-specific inductions and Construction Skills Certification Scheme (CSCS) / Construction Plant Competence Scheme (CPCS) qualification. All site personnel must have the correct CSCS/CPCS card level for their role's duties before commencing works on site.

Prior to commencement of works, a risk assessment and method statement (RAMs) will be provided by the site supervisor. These briefings will cover relevant environmental impacts of the activity to be carried out as well as the procedures that must be followed in the event of an emergency. The training will include reference to the importance of adhering to the contents of the CEMP.

Further training requirements will be identified by the health, safety & environmental team and site supervisors. This will include emergency spill response procedures and awareness training. In addition regular environmental-themed Toolbox Talks (TBTs) will be delivered on site. A minimum of two topics should be covered each month for the duration of the project with additional delivery in the event of an incident, non-conformity or complaint.

General environmental issues, legislative and regulatory requirements will be communicated internally by the issue of internal memos, meetings, training sessions and posters which can be displayed on the environmental board. Key concerns will be raised in Daily Activity Briefings (DABs) and weekly meetings.

17.0 Control of Dust and Emissions

Activity	The Control of Dust and Emissions arising from construction works at Ferry Island
Description	JRL Group intends to use Best Practicable Means BPM, to prevent dust and other pollutant emissions from being carried outside of the site boundary. This method statement is for the duration of the whole contract, but will be reviewed periodically as the contract reaches different milestone stages.
	Pre-Site Preparation All site staff will be fully trained and competent for the role they are to undertake on site. Erect solid barriers to site boundaries. Pre sit planning to ensure all Site fuel, machinery and chemical storage, and dust generating activities should not be located close to boundaries or sensitive receptors where possible. **Haul Roads** The haul roads will be inspected for potholes, puddles and dusty conditions on a daily basis, well maintained haul roads will reduce the dust levels of construction traffic. Dampening down methods will be a road sweeper on the hard stand haul road into site and the public road leading to site. **Site Entrances and Exits** Wheel washing will be in place for leaving vehicles so no fugitive dust particles are taken off site. Vehicles leaving site with dusty or loose material will all be covered before leaving site. **Excavations and Earthworks** All dusty activities should be dampened down, especially during dry and windy weather. Minimise the drop heights to control the fall of materials in the air. Stockpiling will not be required and therefore not permitted throughout the lifespan of the project. **Chutes and Skips**

Securely cover skips where dust or loose detritus can become windblown. Minimise the drop heights to control the fall of materials. Regularly dampen down surfaces within in the skips with water.

Waste Management

A site specific Resource Management Plan has been developed and workers will be briefed on what it stipulates through site inductions and tool box talks.

Hazardous or Contaminated Materials

COSHH assessments will be done for materials coming to site to take into account risks to the workforce from exposure to any harmful substances generated by work activities. All Hazardous materials/waste will be properly signed and segregated. In addition all hazardous materials to site are to have the MSDS stored and available within site office and within COSHH stores in case of emergency.

Dealing with spillages

Use bunded areas wherever practicable. Regularly inspect the site area for spillages, ensuring that spillage kits are readily available. Ensure an update to Spill Pollution Incident Report Plan (SPIRP) is posted in and around the COSHH store and ensure all staff are briefed on it. Clean the spillages using the agreed wet handling methods. These will be in the COSHH assessments once the design has established the exact materials to be used.

Inform the Environmental Agency, London Fire and Rescue Service or the Health Protection Agency [HPA] if harmful substances are spilled.

Tarmac Laying and use of Bitumen

Do not overheat bitumen as this may catch fire and cause smoke; always keep the pots covered with lids.

Use great care in all of the processes to prevent spillages and extinguish any accidental fires immediately.

Noise and CO_2 Emission Controls for Vehicles and Plant Construction Traffic, On or off site

All vehicles are to switch off engines when not in use. A strict 5mph limit will be in place through the site, where possible low sulphur fuel will be used. . All plant must have upward facing exhausts to disperse fumes effectively and equipment well and regularly maintained.

Cutting, Grinding and Sawing

Ensure that power tools have suitable and sufficient extraction or water suppression appliances near to face of the works.

Ensure that the extraction fans and filters on the plant are serviced regularly in accordance with the recommended maintenance regimes. Water suppression equipment should also be regularly maintained to ensure the proper level of protection is given.

Breaking down Piles

JRL Group shall be using a method for breaking down piles designed to crush the pile using hydraulic machine attachments, along with this all the piles will have foam inserts on each up-stand of rebar.

The crush action creates a horizontal cut and foam allows large sections of the pile to be extracted. This method will reduce the airborne dust considerably that is usually generated

	from breaking piles. The pile on occasions may need to be hand trimmed with angle grinder and light breakers. Dust control Both of the aforementioned activities will be subjected to localised water suppression supplied from reusing the ground water from the settlement tank to minimise fresh water use on site. On site soakaways are being utilised for sustainable drainage in addition to this FFP3 rated RPE shall be used by operative whilst using angle grinder.
Responsibilities	**Project Director: Donal Reale** **Environmental Manager: Laura Cabeza Escobar**
Risk Assessments	*See Risk Assessments: - (BO-JRLG-EM-XX-RA-Z-0001) to (BO-JRLG-EM-XX-RA-Z-0010) inclusive*
Controls	Procurement packages will be sent out containing the best practice guidance "The control of dusts and emission from construction and demolition" to the companies who are to make deliveries of materials and plant to site***. Along with this method statement.*** All people are to report to the security main gate for deliveries and visitors to site office. All people coming to site require a site Induction for site workers or site visitors. Site boundaries are to be inspected visually daily and a written inspection every seven days unless adverse weather, or a breach or damage has occurred to the boundary. Pre-planning of deliveries coming to site, must be a strict regime as the site entrance road will not be able to take queuing traffic. Deliveries will be turned away if they cannot be accommodated. Muck away at busy times are to be called on request from the local tip. During wet conditions on site all vehicles will be washed within the wheel wash area. A permanent road sweeper will always be in attendance on site. A site story board telling site operatives and visitors of site activities going on site of the hazards and exclusion zones within the site. Designated smoking areas on site. Smoking anywhere else on site will be instant dismissal. Spill kits will be located near fuel bowsers. Spill kit training and pollution prevention training will be given to all site operatives. If required further dust suppression measures to mitigate dust displacement will be initiated, such as covering up ground or materials, on site, increase water suppression with the use of a mist cannon. Localised dust can be dealt with at source by On-tool extraction: Local exhaust ventilation (LEV) systems can be fitted directly onto tools and works to remove **dust** as it is produced.
PPE Requirements	White Hard Hats for all site personnel with exemption of the mangers/supervisors who will have black. Yellow High Visibility coats or Surcoats to be worn by all with the exemption of traffic banksmen & crane banksmen who will wear orange ones. Steel toe-capped work boots, shoes or wellingtons with Midsole protection strip for all site personnel. Safety glasses and safety gloves are mandatory at all times also. All other PPE / RPE will be identified through risk assessments and specific safe systems of work

Emergency Arrangements	There is an emergency contingency plan that will be available and briefed at induction, but also named people are responsible for carrying out the actions when an emergency occurs. On site there will be trained people for the use of spill kits and the safe disposal. Trained fire marshals, which will assist in fire drills every six months during the contract. ***Inform the Environmental Agency, London Fire and Rescue Service or the Health Protection Agency (HPA) if harmful substances are spilled.*** Inform the London Fire and Rescue Service and Police if a fire or smoke is on site and /or going to be impacting on third parties. Access routes to nearest A&E are displayed in welfare area and on the story boards There will be named, and fully trained first Aiders on site during site hours.		
Temporary amended systems	Exclusion zones will be pre-planned and then displayed on site storyboard and instructed via briefings and clearly designated with appropriate barriers and signage when in use.		
To whom the information has been submitted	• All site personnel • The Client • All third parties should they request it		
Monitoring & Compliance	Carry out daily visual inspections of site activities for dust controls and site conditions and record in site diary. There will be an accurate log kept for complaints from third parties, with a contact number available on the site boundary. Have a five day and daily weather report with wind direction for planning purposes on dust control. Numerous site audits, for safety, environment and quality will be undertaken by JRL Group at group level and external audits will also be conducted via the various organisations that the group belong to and the client wish to audit the site (NHBC, Considerate Constructors Scheme, etc).		
Prepared by:	Laura Cabeza Escobar	**Date:**	02/07/24
Operatives / Staff carrying out these works will be informed of the contents of this method statement			
Signed by:		**Date:**	
(Person supervising the works) **For and on behalf of:**			

18.0 Appendices

18.1 Appendix A: JRL Group Environmental Policy – *BO-JRLG-BM-XX-POL-Z-0010, C09*

Environmental Policy

This statement is a declaration of the director's intent to go above and beyond the organisation's environmental compliance obligations. The JRL Group not only has a responsibility to protect and where possible, enhance the environment, but also recognises its place to influence sustainable design through an informed and engaged workforce. The JRL Group will also strive to continually improve the environmental management system and aim to enhance environmental performance in all construction activities.

The Group will:

- Employ an environment team to oversee all environmental compliance, monitor and report on environmental metrics, meet client requirements and manage, audit and report on the environmental management system to senior management.
- Ensure it has the competencies and resources to effectively implement the environmental management system across the company.
- Comply with all relevant legislation, client and other industry requirements.
- Support a company culture that promotes ownership and responsibility of environmental matters and champion best practise across the company.
- Prevent environmental pollution, with a specific focus on activities associated with fuel storage, concrete, air emissions, noise, vibration and waste management.
- Be prepared to respond immediately in the case of an environmental emergency, by establishing emergency procedures on site and allocating resources to do so.
- Reduce the environmental impacts of our projects by designing out waste and adhering to the waste hierarchy.
- Set annually reviewed measurable and realistic environmental objectives and targets to demonstrate continuous improvement across the JRL Group business.
- Work with our supply chain to source environmentally sustainable materials whilst remaining cost effective.

The Directors, senior management and Environment team are responsible for the management of environmental issues and the implementation of this policy across the company and will ensure the appropriate resources are available. This policy and our overall environmental performance will be reviewed on an annual basis, or if necessary, in light of legislative or organisational changes.

Kevin Keegan
JRL Group Director
January 2025

RN: BO-JRLG-BM-XX-POL-Z-0010	Page 1 of 1	Suitability: A1	Rev: C09
TN: BO-JRLG-BM-XX-FM-Z-0008_A1_C01			Security: Public

18.2 Appendix B: JRL Group Sustainable Procurement Policy – BO-JRLG-BM-XX-POL-Z-0023, C06

Sustainable Procurement Policy

JRL Group is committed to procuring sustainable, ethical and responsibly sourced materials, goods and services. This means JRL Group takes into account the social, economic and environmental impact purchasing has on people and communities, locally, regionally and globally.

JRL Group considers what products are made from, where they have come from, who has made them, under what conditions they are made, how they are transported and eventually how they are decommissioned, or manufactured into other products. All materials, whether for permanent or temporary use, purchased by JRL Group or through its supply chain will support the requirements of BREEAM or other sustainable schemes.

The specific sustainable procurement practices which JRL Group is committed to at all levels within the Company are as follows:

- Procure durable goods and services, which reflect up-to-date specifications or standards for environmental sustainability (e.g. BES 60001, CARES, ISO 14001, A+ BRE Green Guide rating);
- Promote a level of sustainability awareness amongst JRL Group supply chain partners and encourage them to adopt sustainable practices;
- Include sustainability issues as part of our subcontractor & supplier appointment process;
- Prohibit the use of products or processes, which are potentially damaging to the environment, such as toxic materials or refrigerants with high global warming potential, where a less environmentally damaging alternative is available;
- Reduce the purchase of new products when is possible to re-use or repair existing products;
- Where we have design responsibilities, specify products which have high recycled content and with a high recyclability factor;
- Where possible purchase local materials, products and services;
- Raise awareness of and procure ethical and Fair Trade certified products;
- Purchase only Legal and Sustainable Timber products with a valid CoC Certificate;
- Procure recycled and sustainability certified paper products;
- Reduce the procurement of single-use products and materials with excessive packaging;
- To work with suppliers who can assist the JRL Group with its aspirations to reduce its environmental impacts.

This policy statement will be communicated to all persons working for and on behalf of JRL Group.

Kevin Keegan
JRL Group Director
January 2025

RN: BO-JRLG-BM-XX-POL-Z-0023	Page 1 of 1	Suitability: A1	Rev: C06
TN: BO-JRLG-BM-XX-FM-Z-0008_A1_C01			Security: Public

18.3 Appendix C: Emergency Preparedness Plan – *TH-JRLG-EM-XX-PL-Z-0003, C01*

1.0 Scope

JRL Group's Environmental Emergency Preparedness Plan aims to minimise the environmental impact of the potential environmental incidents due to occur during the duration of the works. This document will describe the environmental risks defined as unplanned, undesired events that could result in harm to people and/or damage to the environment.

JRL Group will ensure the site activities comply with legal and contractual requirements and are developed in a way to minimise their impact to the environment and human health.

2.0 Emergency Contact Details

Role	Contact Details
Project Director	Donal Reale 07787 515 097
Emergency Services	999/112 Local Hospital: North Middlesex University Hospital 02088 872 000
Environment Agency	0370 850 6506
Health, Safety & Environmental Director	Anne Fennessy 07469 645 525
Environmental Manager	Laura Cabeza Escobar 07810 826 668

3.0 Environmental High Impact / Risks

The following environmental high impacts have been identified:

Environmental Risks	Impact / Effect	Control Measures	Response
Fire	Emissions of toxic fumes and smoke to atmosphere.	Fire drills on a regular basis. Site fire risk assessment. Firefighting equipment in agreed locations around the site. Emergency evacuation plan. Trained traffic wardens and first aiders.	Refer to JRL Group *Fire & Emergency Plan (H&S)*.
Explosion	Emissions of toxic fumes and smoke to atmosphere.	Safe storage and use of flammable substances and compressed gases.	▪ Contact the alarm. ▪ Activate emergency evacuation plan. ▪ Contact the emergency services.

Discovery of suspect site contamination	Emissions and exposure to contaminated material. Release of toxic substances to the environment.	Awareness training to the workforce.	If site contamination is suspected: ▪ Stop all work immediately. ▪ Evacuate personnel to a safe distance. ▪ If safe to do so, cordon off the area to prevent access. ▪ Inform Project Manager and/or Site Supervisor of the incident. ▪ All personnel are to remain in the vicinity (at a safe distance from suspect material) until actions are agreed. ▪ Complete the incident using the Environmental Incident Form.
Fuel/oil/chemical spillage	Release of chemicals to the environment. Toxic substances entering drainage systems or water courses. Environmental damage to aquatic life.	Hazardous waste containers clearly identified on site. Availability of spill kits to contain spillages and good housekeeping. Clear diagram of the site layout and access details, along with a schematic representation of the site drainage. Emergency spillage control team.	Refer to Section *5 Emergency Spillage Response and Control* of this plan *the Plan* below.
Pollution incident	Release of toxic substances to the environment.	Best environmental practices on site. Control measures specified in the SEMP. Environmental trainings and toolbox talks to all employees.	▪ Contain, recover, clean up and dispose of the pollution that has occurred (provided that this can be done without risk to their health or safety). Complete the incident using the Environmental Incident Form.

4.0 Training

All operatives working on the project must undertake a site induction. The induction will include information with regards to environmental aspects and impacts of the project and the preventive measures to be taken in the event of an environmental incident.

Prior commencement of the works on site a method statement briefing will be provided by the site supervisor and/or health and safety manager. These briefings will comprise the relevant environmental impacts of the activity to be carried out as well as the procedures that must be followed in the event of an emergency.

Environmental toolbox talks will be provided on a monthly basis and emergency procedures will be explained during the induction training. Emergency spillage procedures and awareness training will be regularly provided to the workforce.

Table 3: Responsibilities Matrix

Action	**Responsibility**				
	SO	SM	EM/A	H&S	PM
Identify the pollution/potential pollution incident.	✔	✔	✔	✔	✔
Conduct regular exercises to test procedures.	✔	✔	✔	✔	✔
Implement immediate pollution control measures.		✔			
Notify emergency services.	✔	✔	✔	✔	
Notify Midgard Ltd Project Manager.		✔			
Plan control/clean-up measures.		✔	✔	✔	
Carry out control/clean-up measures.	✔	✔		✔	
Investigate cause of incident and produce EIR form.			✔		
Recommend preventative action.			✔	✔	
Implement prevention action.				✔	✔
Notify EA in extreme emergency.					✔
SO – Site Operation; SM – Site Manager; EM/A Environment Manager/Advisor; H&S – Health and Safety Advisor; PM – Midgard Project Manager.					

5.0 Environmental Emergency Spillage Response & Control

5.1 Controlling Spillage

In the event of a spillage the following procedure will be carried out:

Step 1: Assess the situation

Step 2: Contain the spill and stop it spreading

Step 3: Report the incident

Step 4: Clean the spillage up

5.2 STEP 1: Assess the situation

It is important to assess the situation to identify whether the spillage is safe to contain, what has happened and what to report. The following aspects must be considered:

Has anyone been injured?

Is the spillage escaping into open water (river, stream, and ditch) or drainage system?

Is spillage safe to approach or will you need assistance?

Do you have the correct PPE?

REMEMBER SAFETY FIRST!!

5.3 STEP 2: Contain the spill and stop it spreading

Should a spillage of a substance harmful to the environment occur anywhere on the site, the following actions must be carried out.

1. Remove and exclude persons from the danger area where appropriate

Assuming the spill incident is safe to approach, it is important to isolate the source and prevent the spillage's spread:

2. Stop flow from source of spill.

3. Contact the Environment Team as soon as practicable.

4. Assemble at the spillage area with appropriate clean-up equipment.

5. If spillage is escaping or is likely to enter into drains or open watercourse use absorbent material to block off flow. Request external assistance to manage effects downstream.

6. Use absorbent granules, sand or other absorbent material to contain spill.

7. When putting the absorbent material on the spill always start from the edges and work inwards.

8. Oil absorbent granules will take time to soak up oil or fuel, allow 5-10 minutes before cleaning up.

5.4 STEP 3: Report the incident

Spill incidents must be reported using the Environmental Incident Form. In most cases it is important to contain the spill first; however, any spill that involves injury, a dangerous situation or escape of material into drains or open water must be reported immediately. The report must include:

The source of the spill

The material involved

How far the spill has spread

What action has been taken so far

Contact EA/SEPA if it has reached drains or watercourses.

5.5 STEP 4: Clean up the spillage

The spill must be cleaned up as directed by the Environmental Team.

DO NOT WASH SPILLAGE AWAY INTO DRAIN

Scrape absorbent material up

Use the correct sacks, bins or skips for the disposal of absorbent material – follow disposal instructions properly (as hazardous waste).

Label containers with contents and store in compound for disposal.

5.6 Pollutant Control Table

Pollutants						
Spill Material		Concrete/Cement	Paints	Oil	Silt	Detergent
	Spill on Ground Control Measures					
	Sand	✔	✔	✔		✔
	Straw Bales			✔	✔	
	Absorbent Granules			✔		
	Geotextile	✔		✔	✔	
	Pads, Rolls, Mats			✔	✔	
	Drain Seals	✔	✔	✔	✔	✔
	Earth Bunds	✔	✔	✔	✔	✔
	Spill In Water Control Methods					
	Straw Bales			✔	✔	
	Pads, Rolls, Mats			✔		
	Booms				✔	

17.4 Appendix D: Aspects and Impacts Register -*TH-JRLG-EM-XX-RG-Z-0002, C01*

Site Activity	Aspect (Causes of Impact)	Effect (Potential Impact)	Likelihood	Severity	Gross Impact	Environmental Management Best Practices & Control Measures to minimise impact	Likelihood	Severity	Net Impact	Key Primary & Secondary Legislation (England)	Risks	Opportunities
Groundworks - Excavation & Piling Construction Phase	Noise from construction activities	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Operatives develop health problems including - hearing loss, stress related illness, high blood pressure. Disturbance to local wildlife.	3	2	**5**	Installing 24/7 noise monitoring using Class 1 noise monitors with notifications when exceeding defined limits. Use of acoustic blankets around noisy plant to minimise impact of noise. Provide hearing protection to workforce. Where feasible, carry out regular breaks during the work day where quieter works only are undertaken.	2	1	**3**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 The Noise Emissions in the Environment by Equipment for Use Outdoors Regulations 2001 as Amended 2005 The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Section 61 consent can avoid fines and legal action. Implementing noise monitoring with notifications to alert site team if exceeding limits allows for changes to work process. Work in line with local council's Code of Construction Practice to ensure meeting area's best practice measures. Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.

Groundworks - Excavation & Piling Construction Phase	Air emissions from construction activities	Increased air pollution. Destruction of ozone layer - release of PM2.5, PM10 Nuisance to neighbouring individuals in occupied buildings (residents & businesses). Operatives developing health problems including - respiratory diseases. Disturbance to local wildlife.	2	3	**5**	Installing 24/7 dust monitoring using MCERTs certified dust monitors with notifications when exceeding defined limits. Using dust extraction when cutting. Wearing the correct respirator - the higher the number, the better the protection (FFP1, FFP2, FFP3 respirators can reduce the amount of dust you breath by factors of 4, 10, 20 respectively). Dampening down of stockpiles, dusty works. Wheel washing facilities for vehicles exiting site.	2	1	**3**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 Clean Air Act 1993 Clean Neighbourhoods and Environment Act 2005 Environment Act 2021	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Section 61 consent can avoid fines and legal action. Implementing dust monitoring with notifications to alert site team if exceeding limits allows for changes to work process. Work in line with local council's Code of Construction Practice to ensure meeting area's best practice measures. Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.
Groundworks - Excavation & Piling Construction Phase	Air emissions from burning on site	Increased air pollution. Destruction of ozone layer - release of PM2.5, PM10 Nuisance to neighbouring individuals in occupied buildings (residents & businesses). Operatives developing health problems	2	3	**5**	The burning of wastes is strictly forbidden on all JRL Group sites.	1	1	**2**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 Clean Air Act 1993 Clean Neighbourhoods and Environment Act 2005 Environment Act 2021	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Section 61 consent can avoid fines and legal action. Implementing dust monitoring with notifications to alert site team if exceeding limits allows for changes to work process. Work in line with local council's Code of Construction Practice to ensure meeting area's best practice measures.

		including - respiratory diseases. Disturbance to local wildlife.										Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.
Groundworks - Excavation & Piling Construction Phase	Air emissions from dark smoke from plant and equipment	Increased air pollution. Destruction of ozone layer - release of PM2.5, PM10 Nuisance to neighbouring individuals in occupied buildings (residents & businesses). Operatives developing health problems including - respiratory diseases. Disturbance to local wildlife.	2	3	**5**	Conduct routine and major maintenance in accordance with manufacturer's guidance. Keep records of all inspections and maintenance works. No idling - shut down machinery when not in case or throttle down to a minimum idling speed if the former is not possible. Utilise new equipment with lower emissions - Stage V and above, and/or electric plant where available.	2	1	**3**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 Clean Air Act 1993 Clean Neighbourhoods and Environment Act 2005 Environment Act 2021	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Section 61 consent can avoid fines and legal action. Implementing dust monitoring with notifications to alert site team if exceeding limits allows for changes to work process. Work in line with local council's Code of Construction Practice to ensure meeting area's best practice measures. Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.

Groundworks - Excavation & Piling	Odour release	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Release of chemicals which can be toxic. Develop health problems including - eye, nose and throat irritation, nausea, drowsiness, mental depression. Disturbance to local wildlife.	2	3	**5**	Conduct daily / weekly odour monitoring in line with site-specific documentation - sniff testing, Photo Ionisation Detector (PID) readings, tenax tube tests as necessary. Cover any stockpiles of odour-releasing materials. Misting system on site boundary hoarding.	2	1	**3**	Environmental Protection Act 1990 The Environmental Permitting (England & Wales) Regulations 2016 as Amended 2018	Nuisance to neighbouring residents/businesses/fauna. Risk of not complying with site-specific RMS requirements preventing planning condition discharge.	Implementing odour monitoring where required with result review to alert site team if exceeding limits allows for changes to work process. Work in line with site-specific remediation method statement to minimise odour release. Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.
Groundworks - Excavation & Piling Construction Phase	Vibration	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Disturbance to local wildlife.	2	3	**5**	Installing 24/7 vibration monitors with notifications when exceeding limits. Utilising low-impact construction methods especially with groundworks such as Continuous Fight Auger (CFA) piling method. Where feasible, carry out regular breaks during the work day where lower impact works are carried out only.	2	1	**3**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Section 61 consent can avoid fines and legal action. Implementing vibration monitoring with notifications to alert site team if exceeding limits allows for changes to work process. Work in line with local council's Code of Construction Practice to ensure meeting area's best practice measures. Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.

Groundworks - Excavation & Piling Construction Phase	Waste generation	Contamination issues when waste is disposed - land, air, water. Increase of the amount of waste to landfill within the UK. Increase of cost of disposal of waste. Use of natural resources.	3	2	**5**	Waste minimisation methods on site to reduce waste created in first instance. Reuse of materials on site including aggregates from demolition, timber formwork etc. Segregation of different waste streams at source to prevent contamination and support recycling. Selecting disposal destinations which have greater than 95% diversion from landfill as minimum. Recycling of concrete and aggregates at JRL Environmental's Silvertown yard through WRAP protocol. Use of offsite construction methods to minimise waste created on site. Regular waste collections organised from site to reduce amounts held on site. Covering skips and wagons removing waste to limit debris and air pollution. Packaging take-	1	1	**2**	Control of Pollution (Amendment) Act 1989 Environmental Protection Act 1990 Clean Neighbourhoods and Environment Act 2005 The Environmental Permitting (England & Wales) Regulations 2016 as Amended 2018 The Controlled Waste (England and Wales) Regulations 2012 The Environmental Noise, Site Waste Management Plans and Spreadable Fats etc. (Revocations and Amendments) Regulations 2013 The Waste (England & Wales) Regulation 2011 as Amended 2014 The Waste (Circular Economy) (Amendment) Regulations 2020 Environment Act 2021	Contamination to air, land and watercourses.	Circular economy statements and whole life cycle carbon assessments pushing further development of end of life strategy to waste on products, utilising waste as a resource. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite construction methods and using s products which minimise waste generation. Segregation of wastes to increase reuse and recycling rates.

						back schemes / reusable packaging with suppliers.					

Groundworks - Excavation & Piling Construction Phase	Hazardous waste generation	Contamination issues when waste is disposed - land, air, water. Increase of the amount of waste to landfill within the UK. Increase of cost of disposal of waste.	2	3	**5**	Waste minimisation methods on site to reduce waste created in first instance. Segregation of different waste streams at source to prevent contamination and support recycling. Selecting disposal destinations which have greater than 95% diversion from landfill as minimum. Use of offsite construction methods to minimise waste created on site. Containing hazardous waste in closed bins prior to collection. Locate waste storage area away from drains. Regular waste collections organised from site to reduce amounts held on site. Covering skips and wagons removing waste to limit debris and air pollution.	2	1	**3**	The Hazardous Waste (England & Wales) Regulations 2005 as Amended 2016 The Environmental Permitting (England & Wales) Regulations 2016 as Amended 2018 The Control of Asbestos Regulations 2012 The Controlled Waste (England and Wales) Regulations 2012 Environment Act 2021	Contamination to air, land and watercourses.	Circular economy statements and whole life cycle carbon assessments pushing further development of end of life strategy to waste on products, utilising waste as a resource. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite construction methods and using s products which minimise waste generation. Segregation of wastes to increase reuse and recycling rates.

Construction Phase - Drylining	Plasterboard waste generation	Contamination issues when waste is disposed - land, air, water. Increase of cost of disposal of waste. Use of natural resources. Separation of plasterboard which can't be disposed of in landfill.	2	3	**5**	Waste minimisation methods on site to reduce waste created in first instance. Segregation of different waste streams at source to prevent contamination and support recycling. Use of offsite construction methods to minimise waste created on site. Locate waste storage area away from drains. Regular waste collections organised from site to reduce amounts held on site. Covering skips and wagons removing waste to limit debris and air pollution. Offcuts used in other areas of the buildings to reduce wastage.	2	1	**3**	Control of Pollution (Amendment) Act 1989 Environmental Protection Act 1990 Clean Neighbourhoods and Environment Act 2005 The Environmental Permitting (England & Wales) Regulations 2016 as Amended 2018 The Controlled Waste (England and Wales) Regulations 2012 The Environmental Noise, Site Waste Management Plans and Spreadable Fats etc. (Revocations and Amendments) Regulations 2013 The Waste (England & Wales) Regulation 2011 as Amended 2014 The Waste (Circular Economy) (Amendment) Regulations 2020 Environment Act 2021	Contamination to air, land and watercourses.	Plasterboard segregation to avoid contamination fines. Circular economy statements and whole life cycle carbon assessments pushing further development of end of life strategy to waste on products, utilising waste as a resource. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite construction methods and using s products which minimise waste generation. Segregation of wastes to increase reuse and recycling rates.

Groundworks - Excavation & Piling Construction Phase	Building on previously occupied land	Contamination issues - land, air, water. Operatives developing health problems including - respiratory diseases.	2	3	**5**	Following recommendations from geotechnical consultant and remediation method statement including watching briefs, validation testing. Appropriate training provided to individuals. Covering stockpiles where required. Dampening down of stockpiles.	2	1	**3**	Environmental Protection Act 1990 The Contaminated Land (England) Regulations 2006 as Amended 2012	Contamination to air, land and watercourses. Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Utilising previously occupied land to reduce building on greenfield sites.
Groundworks - Excavation & Piling	Potential to uncover unknown contamination	Contamination issues - land, air, water. Operatives developing health problems including - respiratory diseases.	2	3	**5**	Following recommendations from geotechnical consultant and remediation method statement including watching briefs, validation testing. Appropriate training provided to individuals. Covering stockpiles where required. Dampening down of stockpiles.	2	1	**3**	Environmental Protection Act 1990 The Contaminated Land (England) Regulations 2006 as Amended 2012	Contamination to air, land and watercourses. Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Using specialist consultant where required. Utilising previously occupied land to reduce building on greenfield sites.
Groundworks - Excavation & Piling Construction Phase	Soil movement	Contamination issues - land, air, water. Operatives developing health problems including - respiratory diseases.	2	3	**5**	Following recommendations from geotechnical consultant and remediation method statement including watching briefs, validation testing. Appropriate training provided to individuals. Covering stockpiles	2	1	**3**	Environmental Protection Act 1990 The Contaminated Land (England) Regulations 2006 as Amended 2012	Contamination to air, land and watercourses. Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Using specialist consultant where required. Utilising previously occupied land to reduce building on greenfield sites.

						where required. Dampening down of stockpiles.					
Groundworks - Excavation & Piling Construction Phase	Protection of historical / listed buildings and monuments	Damage to conservation of protected buildings and cultural assets.	2	3	**5**	Fencing of protected areas to prevent workforce entering area.	2	1	**3**	Historic Building and Ancient Monuments Act 1953 Ancient Monuments and Archaeological Areas Act 1979 National Heritage Act 2002 Planning (Listed Buildings and Conservation Area) Act 1990	Risk of fines and legal action stopping workings.	Using specialist consultant where required. Utilising previously occupied land to reduce building on greenfield sites. Retained features reduce embodied carbon and new materials of future building.
Groundworks - Excavation & Piling Construction Phase	Fuel consumption	Burning of diesel / petrol fuels creates carbon emissions. Risk of fuel spillages.	2	2	**4**	Use of alternative fuels such as HVO or electric plant to reduce fuel consumption. Fuel consumption reported on a monthly basis.	1	1	**2**	Climate Change Act 2008 Climate Change Act 2008 (2050 Target Amendment) Order 2019 The Energy Savings Opportunity Scheme Regulations 2014 The Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Reductions in fuel and energy consumption equate to reduce running costs. Reduction in carbon emissions reducing whole life cycle carbon analysis results.

Groundworks - Excavation & Piling Construction Phase	Task lighting	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Light pollution. Disturbance to local wildlife.	2	1	**3**	Lighting to be installed with timeclocks to ensure all non-security lighting switched off at end of day. Lighting placement considered and installed in down-facing position.	1	1	**2**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 Clean Neighbourhoods and Environment Act 2005 Environment Act 2021	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings. Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Section 61 consent can avoid fines and legal action. Implementing time clocks and/or motion sensors to ensure all lighting turned off when areas not in use. Work in line with local council's Code of Construction Practice to ensure meeting area's best practice measures. Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.
Groundworks - Excavation & Piling Construction Phase	Use of generators	Use of generators where no connection to mains using diesel / HVO thus creating carbon emissions. Failure of generator could lead to leak/spillage of fuel - potential contamination to ground or drainage. Generator fire causes toxic fumes, loss of fuel to ground or site drainage.	2	2	**4**	Spill kit and EnviroPads / plant nappies to be available close to the generator and bowser used for fuelling. Generator and bowser to be located on impermeable surface where feasible. Bowser to have self contained bunding - 110% capacity. Using Stage V generators within NRMM Central Activity Zone and Opportunity Area as	1	2	**3**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 Clean Neighbourhoods and Environment Act 2005 Climate Change Act 2008 Climate Change Act 2008 (2050 Target Amendment) Order 2019 The Energy Savings Opportunity Scheme Regulations 2014 The Companies (Directors' Report) and Limited Liability Partnerships (Energy	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Reductions in fuel and energy consumption equate to reduce running costs. Reduction in carbon emissions reducing whole life cycle carbon analysis results.

						minimum, Stage IIIB in Greater London.				and Carbon Report) Regulations 2018		
Groundworks - Excavation & Piling Construction Phase	Electricity consumption	Depletion of natural resources (fossil fuels). Carbon emissions from electricity generation.	2	2	**4**	Ensuring electricity consuming plant / lighting are switched off when not in use. Utilising energy efficient machinery.	1	2	**3**	Climate Change Act 2008 Climate Change Act 2008 (2050 Target Amendment) Order 2019 The Energy Savings Opportunity Scheme Regulations 2014 The Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Reductions in fuel and energy consumption equate to reduce running costs. Reduction in carbon emissions reducing whole life cycle carbon analysis results.

Groundworks - Excavation & Piling Construction Phase	Water consumption	Depletion of natural resources.	2	2	**4**	Water efficient equipment. Ensure no water consuming equipment left on when not in use. Leak detection to cut off supply if required.	1	2	**3**	Environmental Protection Act 1990 Water Industry Act 1991 Environment Act 2021	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Reductions in water consumption equate to reduce running costs. Reduction in carbon emissions reducing whole life cycle carbon analysis results.
Groundworks - Excavation & Piling Construction Phase	Vehicle movements	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Increased noise, traffic congestion. Carbon emissions from vehicles. Disturbance to local wildlife.	3	2	**5**	Using newer vehicles with less emissions - Euro 6 which are compliant with London's ULEZ and other city's similar low emission zones. JRL Group vehicles certified to FORS Gold standard. Preference of FORS Silver standard for all other vehicles delivering to site. Sites undertaking CLOCS checks at the gates. Limiting number of deliveries by sending away material/equipment on empty wagons. Booking in deliveries to prevent vehicles showing up within same delivery slot and calculate carbon emissions. Ensuring vehicles do not show up before or after site opening hours, following the	2	1	**3**	Highways Act 1980 Environmental Protection Act 1990 Environment Act 2021	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Reductions in fuel and energy consumption equate to reduce running costs. Reduction in carbon emissions reducing whole life cycle carbon analysis results. Section 61 consent can avoid fines and legal action. Work in line with local council's Code of Construction Practice to ensure meeting area's best practice measures. Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.

						site's traffic management plan.					

Groundworks - Excavation & Piling	Transportation of dangerous goods including asbestos	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Increased noise, traffic congestion. Carbon emissions from vehicles. Disturbance to local wildlife.	3	2	**5**	Using newer vehicles with less emissions - Euro 6 which are compliant with London's ULEZ and other city's similar low emission zones. JRL Group vehicles certified to FORS Gold standard. Preference of FORS Silver standard for all other vehicles delivering to site. Sites undertaking CLOCS checks at the gates. Limiting number of deliveries by sending away material/equipment on empty wagons. Booking in deliveries to prevent vehicles showing up within same delivery slot and calculate carbon emissions. Ensuring vehicles do not show up before or after site opening hours, following the site's traffic management plan.	2	1	**3**	The Carriage of Dangerous Goods and use of Transportable Pressure Equipment Regulations 2009 as Amended 2011 The Control of Asbestos Regulations 2012	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Reductions in fuel and energy consumption equate to reduce running costs. Reduction in carbon emissions reducing whole life cycle carbon analysis results. Section 61 consent can avoid fines and legal action. Work in line with local council's Code of Construction Practice to ensure meeting area's best practice measures. Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.

Groundworks - Excavation & Piling Construction Phase	Transportation of waste for disposal	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Increased noise, traffic congestion. Carbon emissions from vehicles. Disturbance to local wildlife.	3	2	**5**	Using newer vehicles with less emissions - Euro 6 which are compliant with London's ULEZ and other city's similar low emission zones. JRL Group vehicles certified to FORS Gold standard. Preference of FORS Silver standard for all other vehicles delivering to site. Sites undertaking CLOCS checks at the gates. Limiting number of deliveries by sending away material/equipment on empty wagons. Booking in deliveries to prevent vehicles showing up within same delivery slot and calculate carbon emissions. Ensuring vehicles do not show up before or after site opening hours, following the site's traffic management plan.	2	1	**3**	The Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 as Amended 1998 Deregulation and Contracting Out Act 1994 Finance Act 1996 as Amended 2018 Scrap Metal Dealers Act 2013 The Unauthorised Deposit of Waste (Fixed Penalties) Regulations 2016	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Reductions in fuel and energy consumption equate to reduce running costs. Reduction in carbon emissions reducing whole life cycle carbon analysis results. Section 61 consent can avoid fines and legal action. Work in line with local council's Code of Construction Practice to ensure meeting area's best practice measures. Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.

Groundworks - Excavation & Piling Construction Phase	Track-out onto local road network	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Disturbance to local wildlife. Silt pollution via drainage.	3	2	**5**	Wheel washing facilities for vehicles exiting site. Use of roadsweeper on local road network around site. Drain guards installed in drains on and around site boundary.	2	1	**3**	Highways Act 1980 Environmental Protection Act 1990 Environment Act 2021	Contamination to air, land and watercourses. Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Fines and legal implications can be avoided.
Groundworks - Excavation & Piling	Clearing of shrubbery to allow for construction of development - destruction of habitat	Risk of damage of bird nests or any structure used for shelter of a schedule 5 listed animal. Risk of uprooting or destroying schedule 8 listed plant species. Release or allow to escape into the wild any non-native animal. Risk of damage to trees subject to a tree preservation order.	2	2	**4**	Appointing an ecologist to complete a site survey prior to any works commence to ensure no nesting birds or similarly protected species are on site. Carrying out site clearance and demolition works outside of nesting bird season.	1	1	**2**	Wildlife and Countryside Act 1981 Environmental Protection Act 1990 Town and Country Planning Act 1990 Protection of Badgers Act 1992 The Conservation of Habitats and Species Regulations 2017 The Invasive Alien Species (Enforcement and Permitting) Order 2019 Environment Act 2021 Environment Act 2021	Risk of fines and legal action stopping workings.	Fines and legal implications can be avoided.

Groundworks - Excavation & Piling Construction Phase	Concrete washout - waste water disposal	Stormwater polluted with debris / chemicals from demolition / construction activities. Disturbance to local wildlife.	2	3	**5**	Recycle wastewater from washing of mixer trucks, drum mixers and similar equipment wherever practical to minimise wastewater discharge. Provide standby pumping for recycling system to avoid pollution from wastewater overflow. After treatment of surplus wastewater for silt by means of siltation tank and pH adjustment facilities to pH 6-10, discharge into foul sewer. Employ more elaborate treatment for discharge into stormwater drains. Treat all contaminated surface water from concrete operations with appropriate facilities.	2	1	**3**	Land Drainage Act 1991 Water Resources Act 1991 Flood and Water Management Act 2010	Risk of fines and legal action stopping workings. Contamination to air, land and watercourses.	Fines and legal implications can be avoided.

Groundworks - Excavation & Piling	Water discharge	Stormwater polluted with sediment from demolition / construction activities. Disturbance to local wildlife.	2	2	**4**	Use of sediment tank systems to clean water before discharge. Application of trade effluent or ground water discharge licences as required.	2	1	**3**	The Trade Effluent (Prescribed Processes and Substances) Regulations 1989 as Amended 1992 Water Industry Act 1991 as Amended 1999 The Control of Pollution (Applications, Appeals and Registers) Regulations 1996 The Groundwater (England & Wales) Regulations 2009 Water Act 2003	Risk of fines and legal action stopping workings. Contamination to air, land and watercourses.	Fines and legal implications can be avoided.
Groundworks - Excavation & Piling Construction Phase	Use and storage of Oil	Stormwater polluted with oil from demolition / construction activities. Disturbance to local wildlife. Depletion of natural resources. Contamination - land, air, water.	2	3	**5**	Storage of drums on bunds with 110% capacity. Bowsers used which are double bunded. Limiting supplies on site to what is required. Spill kits available close to storage and areas of use. EnviroPads utilised when refuelling. Disposal of used spill kits within hazardous waste bins/Hazibags.	2	2	**4**	The Control of Pollution (Oil Storage) (England) Regulations 2001	Risk of fines and legal action stopping workings. Contamination to air, land and watercourses.	Fines and legal implications can be avoided.

Groundworks - Excavation & Piling Construction Phase	Use and storage of COSHH materials	Stormwater polluted with chemicals from demolition / construction activities. Disturbance to local wildlife. Depletion of natural resources. Contamination - land, air, water.	3	3	**6**	Storage of drums on bunds with 110% capacity. Bowsers used which are double bunded. Limiting supplies on site to what is required. Spill kits available close to storage and areas of use. EnviroPads utilised when refuelling. Disposal of used spill kits within hazardous waste bins/Hazibags.	2	2	**4**	The Control of Substances Hazardous to Health Regulations 2002 as Amended 2004 The REACH Enforcement Regulations 2008 The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009	Risk of fines and legal action stopping workings. Contamination to air, land and watercourses.	Fines and legal implications can be avoided.
Groundworks - Excavation & Piling Construction Phase	Spillage of chemicals or fuel	Stormwater polluted with chemicals / fuel from demolition / construction activities. Disturbance to local wildlife. Depletion of natural resources. Contamination - land, air, water.	2	2	**4**	Storage of drums on bunds with 110% capacity. Bowsers used which are double bunded. Limiting supplies on site to what is required. Spill kits available close to storage and areas of use. EnviroPads utilised when refuelling. Disposal of used spill kits within hazardous waste bins/Hazibags.	1	2	**3**	The Control of Pollution (Oil Storage) (England) Regulations 2001 The Control of Substances Hazardous to Health Regulations 2002 as Amended 2004 The REACH Enforcement Regulations 2008 The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009	Risk of fines and legal action stopping workings. Contamination to air, land and watercourses.	Fines and legal implications can be avoided.

Construction Phase	Storage of materials	Fire hazard of cardboard packaging and combustible materials.	1	2	**3**	Creating appropriate storage areas. Just in time deliveries to prevent stockpiles of unnecessary amounts of material. Storing combustible material away from COSHH store and gas canisters.	1	1	**2**	Environmental Protection Act 1990 Environment Act 2021	Contamination to air, land and watercourses.	Fines and legal implications can be avoided.
Construction Phase	Welding - air quality	Air pollution - outputs from welding processes are welding fumes, radiation, UV light, flames and welding gas mixtures. Carbon emissions. Operatives developing health problems including - respiratory diseases.	2	2	**4**	Utilise different methods of welding which produce less fume. Use safety visor and overalls to shield from UV light. Wearing the correct respirator - the higher the number, the better the protection (FFP1, FFP2, FFP3 respirators can reduce the amount of dust you breath by factors of 4, 10, 20 respectively).	1	2	**3**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 Clean Air Act 1993 Clean Neighbourhoods and Environment Act 2005 Environment Act 2021	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Fines and legal implications can be avoided.
Tower Crane / Hoist Use	Poor weather conditions - limiting ability for crane/hoist use	Poor weather can result in cranes not being able to carry out works, impacting programme and potential jumping / dismantling of cranes which might have required Section 61 dispensation.	2	1	**3**	Agreeing consecutive weekends of dispensation with local authorities so a back-up is available if required.	1	1	**2**	Control of Pollution Act 1974	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Section 61 consent can avoid fines and legal action.

Tower Crane / Hoist Use	Noise from 24/7 switched on power / lifting services	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Operatives develop health problems including - hearing loss, stress related illness, high blood pressure. Disturbance to local wildlife.	3	2	**5**	Installing 24/7 noise monitoring using Class 1 noise monitors with notifications when exceeding defined limits. Use of acoustic blankets around noisy plant to minimise impact of noise. Provide hearing protection to workforce. Where feasible, carry out regular breaks during the work day where quieter works only are undertaken.	2	1	**3**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 The Noise Emissions in the Environment by Equipment for Use Outdoors Regulations 2001 as Amended 2005 The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Section 61 consent can avoid fines and legal action. Implementing noise monitoring with notifications to alert site team if exceeding limits allows for changes to work process. Work in line with local council's Code of Construction Practice to ensure meeting area's best practice measures. Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.

Commissioning & Handover	Air emissions	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Operatives develop health problems including - hearing loss, stress related illness, high blood pressure. Disturbance to local wildlife.	2	3	**5**	Installing 24/7 dust monitoring using MCERTs certified dust monitors with notifications when exceeding defined limits. Using dust extraction when cutting. Wearing the correct respirator - the higher the number, the better the protection (FFP1, FFP2, FFP3 respirators can reduce the amount of dust you breath by factors of 4, 10, 20 respectively). Dampening down of stockpiles, dusty works. Wheel washing facilities for vehicles exiting site.	2	1	**3**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 Clean Air Act 1993 Clean Neighbourhoods and Environment Act 2005 Environment Act 2021	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Fines and legal implications can be avoided.
Commissioning & Handover	Leakage of chemically-contaminated water	Consumption of chemicals for testing which could leak and cause ground contamination. Discharge of wastewater arising from sample collection. Watercourse pollution through sewer discharge.	2	3	**5**	Limiting supplies on site to what is required. Spill kits available close to storage and areas of use. EnviroPads utilised when refuelling. Disposal of used spill kits within hazardous waste bins/Hazibags.	2	1	**3**	Control of Pollution Act 1974 Environmental Protection Act 1990 Clean Neighbourhoods and Environment Act 2005 Environment Act 2021	Contamination to air, land and watercourses.	Fines and legal implications can be avoided.

Servicing of Plant and Machinery	Spillage of chemicals or fuel	Contaminants could filtrate into ground affecting microbiology of soil and surrounding landscape. Disturbance to wildlife.	2	2	**4**	Storage of drums on bunds with 110% capacity. Bowsers used which are double bunded. Limiting supplies on site to what is required. Spill kits available close to storage and areas of use. EnviroPads utilised when refuelling. Disposal of used spill kits within hazardous waste bins/Hazibags.	1	2	**3**	The Control of Substances Hazardous to Health Regulations 2002 as Amended 2004 The REACH Enforcement Regulations 2008 The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009	Contamination to air, land and watercourses.	Fines and legal implications can be avoided.
Servicing of Plant and Machinery	Cleaning of plant and machinery	Pollutant wash out entering drains or local environment. Contamination of groundwater.	2	2	**4**	Washing machinery down away from watercourses. Using drain guards to prevent silt / oil entering drainage system.	1	2	**3**	Control of Pollution Act 1974 The Control of Substances Hazardous to Health Regulations 2002 as Amended 2004 The REACH Enforcement Regulations 2008 The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009	Contamination to air, land and watercourses.	Fines and legal implications can be avoided.

Servicing of Plant and Machinery	Welding - air quality	Air pollution - outputs from welding processes are welding fumes, radiation, UV light, flames and welding gas mixtures. Carbon emissions. Operatives developing health problems including - respiratory diseases.	2	2	**4**	Utilise different methods of welding which produce less fume. Use safety visor and overalls to shield from UV light. Wearing the correct respirator - the higher the number, the better the protection (FFP1, FFP2, FFP3 respirators can reduce the amount of dust you breath by factors of 4, 10, 20 respectively).	1	2	**3**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 Clean Air Act 1993 Clean Neighbourhoods and Environment Act 2005 Environment Act 2021	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Fines and legal implications can be avoided.
Offices & Welfare (including canteen and WCs)	Noise from offices	Disturbance of neighbouring individuals in occupied buildings (residents & businesses). Disturbance to local wildlife.	1	1	**2**	Limiting noisy works to outside of office setting.	1	1	**2**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 The Noise Emissions in the Environment by Equipment for Use Outdoors Regulations 2001 as Amended 2005 The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Regular dialogue with local community via newsletters and resident's meetings to inform residents of project programme.

Offices & Welfare (including canteen and WCs)	Waste generation	Contamination issues when waste is disposed - land, air, water. Increase of the amount of waste to landfill within the UK. Increase of cost of disposal of waste. Use of natural resources.	3	1	**4**	Waste minimisation methods on site to reduce waste created in first instance. Reuse of materials on site including aggregates from demolition, timber formwork etc. Segregation of different waste streams at source to prevent contamination and support recycling. Selecting disposal destinations which have greater than 95% diversion from landfill as minimum. Recycling of concrete and aggregates at JRL Environmental's Silvertown yard through WRAP protocol. Use of offsite construction methods to minimise waste created on site. Regular waste collections organised from site to reduce amounts held on site. Covering skips and wagons removing waste to limit debris and air pollution. Packaging take-	1	1	**2**	Control of Pollution (Amendment) Act 1989 Environmental Protection Act 1990 Clean Neighbourhoods and Environment Act 2005 The Environmental Permitting (England & Wales) Regulations 2016 as Amended 2018 The Controlled Waste (England and Wales) Regulations 2012 The Environmental Noise, Site Waste Management Plans and Spreadable Fats etc. (Revocations and Amendments) Regulations 2013 The Waste (England & Wales) Regulation 2011 as Amended 2014 The Waste (Circular Economy) (Amendment) Regulations 2020 Environment Act 2021	Contamination to air, land and watercourses.	Fines and legal implications can be avoided. Circular economy statements and whole life cycle carbon assessments pushing further development of end of life strategy to waste on products, utilising waste as a resource. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite construction methods and using s products which minimise waste generation. Segregation of wastes to increase reuse and recycling rates.

						back schemes / reusable packaging with suppliers.						
Offices & Welfare (including canteen and WCs)	Use of refrigerant (air conditioning units)	Climate change. Depletion of ozone. Risk of leakage.	1	2	**3**	Correct commissioning and regular maintained inspections.	1	1	**2**	The Fluorinated Greenhouse Gases Regulations 2015	Contamination to air, land and watercourses.	Fines and legal implications can be avoided.

Offices & Welfare (including canteen and WCs)	Use of COSHH - cleaning products	Contamination issues when waste is disposed - land, air, water.	1	1	**2**	Storage of drums on bunds with 110% capacity. Bowsers used which are double bunded. Limiting supplies on site to what is required. Spill kits available close to storage and areas of use. EnviroPads utilised when refuelling. Disposal of used spill kits within hazardous waste bins/Hazibags.	1	1	**2**	The Control of Substances Hazardous to Health Regulations 2002 as Amended 2004 The REACH Enforcement Regulations 2008 The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009	Contamination to air, land and watercourses.	Fines and legal implications can be avoided.
Offices & Welfare (including canteen and WCs)	Spillage of chemicals - cleaning products	Disturbance to local wildlife. Depletion of natural resources. Contamination - land, air, water.	1	1	**2**	Storage of drums on bunds with 110% capacity. Bowsers used which are double bunded. Limiting supplies on site to what is required. Spill kits available close to storage and areas of use. EnviroPads utilised when refuelling. Disposal of used spill kits within hazardous waste bins/Hazibags.	1	1	**2**	The Control of Substances Hazardous to Health Regulations 2002 as Amended 2004 The REACH Enforcement Regulations 2008 The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009	Contamination to air, land and watercourses.	Fines and legal implications can be avoided.

Offices & Welfare (including canteen and WCs)	Disposal of used cooking oil	Contamination issues when waste is disposed - land, air, water. Disturbance to wildlife.	3	1	**4**	Correct disposal of oil - not down drains. Selecting environmentally friendly types of cooking oil.	1	1	**2**	The Control of Pollution (Oil Storage) (England) Regulations 2001	Contamination to air, land and watercourses.	Fines and legal implications can be avoided. Circular economy statements and whole life cycle carbon assessments pushing further development of end of life strategy to waste on products, utilising waste as a resource. Segregation of wastes to increase reuse and recycling rates.
Offices & Welfare (including canteen and WCs)	Use of paper	Use of natural resources.	3	1	**4**	Limit printing if able, double-sided printing to prevent amount used.	1	1	**2**	Environmental Protection Act 1990 Environment Act 2021	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Circular economy statements and whole life cycle carbon assessments pushing further development of end of life strategy to waste on products, utilising waste as a resource. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite construction methods and using s products which minimise waste generation. Segregation of wastes to increase reuse and recycling rates.

Offices & Welfare (including canteen and WCs)	Energy consumption	Use of natural resources.	2	2	**4**	Ensuring electricity consuming equipment / lighting are switched off when not in use. Utilising energy efficient equipment.	1	1	**2**	Climate Change Act 2008 Climate Change Act 2008 (2050 Target Amendment) Order 2019 The Energy Savings Opportunity Scheme Regulations 2014 The Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Reductions in fuel and energy consumption equate to reduce running costs. Reduction in carbon emissions reducing whole life cycle carbon analysis results.
Offices & Welfare (including canteen and WCs)	Water consumption	Use of natural resources.	2	1	**3**	Water efficient equipment. Ensure no water consuming equipment left on when not in use. Leak detection to cut off supply if required.	1	1	**2**	Environmental Protection Act 1990 Water Industry Act 1991 Environment Act 2021	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Reductions in water consumption equate to reduce running costs. Reduction in carbon emissions reducing whole life cycle carbon analysis results.
Offices & Welfare (including canteen and WCs)	Printing services - toner use	Contamination issues when waste is disposed - land, air, water. Increase of the amount of waste to landfill within the UK. Increase of cost of disposal of waste. Use of natural resources.	3	1	**4**	Recycling toner to reduce waste to landfill.	1	1	**2**	The Waste Electrical and Electronic Equipment Regulations 2013 as Amended 2018	Risk of fines and legal action stopping workings.	Despite the resin, toner printing is, in some ways, very eco-friendly because it emits no toxins into the environment and has a high-efficiency transfer rate. Very little waste is created, and there is no ink to discard at the end of the process.

Offices & Welfare (including canteen and WCs)	Generation of waste electrical equipment	Contamination issues when waste is disposed - land, air, water. Increase of the amount of waste to landfill within the UK. Increase of cost of disposal of waste. Use of natural resources.	3	1	**4**	Selecting disposal destinations which have greater than 95% diversion from landfill as minimum. Refurbing old IT equipment rather than replacing new.	1	1	**2**	The Environmental Permitting (England & Wales) Regulations 2016 as Amended 2018 The Waste Batteries and Accumulators Regulations 2009 The Waste (England & Wales) Regulation 2011 as Amended 2014 The Controlled Waste (England and Wales) Regulations 2012 The Waste Electrical and Electronic Equipment Regulations 2013 as Amended 2018 Environment Act 2021	Risk of fines and legal action stopping workings. Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Promote reuse and recycling of electrical equipment. Fines and legal implications can be avoided.
Offices & Welfare (including canteen and WCs)	Sewage discharge	Contamination - land, air, water. Disturbance to wildlife.	2	1	**3**	Correct treatment of wastewater prior to discharge eg. Septic tank.	1	1	**2**	The Trade Effluent (Prescribed Processes and Substances) Regulations 1989 as Amended 1992 Water Industry Act 1991 as Amended 1999 The Control of Pollution (Applications, Appeals and Registers) Regulations 1996 The Groundwater (England & Wales) Regulations 2009 Water Act 2003	Nuisance to neighbouring residents/businesses/fauna. Risk of fines and legal action stopping workings.	Fines and legal implications can be avoided.

Procurement	Timber procurement and use - temporary and permanent	Using natural resources.	3	1	**4**	Selecting timber products with FSC or PEFC certification chain of custody. Reuse of timber formwork, pallets etc where feasible.	1	1	**2**	Modern Slavery Act 2015 The Forest Law Enforcement, Governance and Trade Regulations 2012 The Timber and Timber Products (Placing on the Market) Regulations 2013 The Modern Slavery Act 2015 (Transparency in Supply Chains) Regulations 2015	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Selecting suppliers and products who have a certified FSC or PEFC or similar to ensure suppliers taking accountability for their own environmental processes and procedures. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite construction methods and using s products which minimise waste generation.
Procurement	Non-certified material procurement (sustainable certifications)	Using natural resources. Not taking responsibility for material selection.	3	1	**4**	Selecting suppliers and products who have a certified ISO14001 EMS and BES 6001 or similar to ensure suppliers taking accountability for their own environmental processes and procedures. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products.	1	1	**2**	Modern Slavery Act 2015 The Forest Law Enforcement, Governance and Trade Regulations 2012 The Timber and Timber Products (Placing on the Market) Regulations 2013 The Modern Slavery Act 2015 (Transparency in Supply Chains) Regulations 2015	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Selecting suppliers and products who have a certified ISO14001 EMS and BES 6001 or similar to ensure suppliers taking accountability for their own environmental processes and procedures. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite

						Innovation of offsite construction methods and using s products which minimise waste generation.					construction methods and using s products which minimise waste generation.
Procurement	Sourcing materials with low embodied carbon	Using natural resources. Not taking responsibility for material selection.	3	1	**4**	Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite construction methods and using s products which minimise waste generation.	1	1	**2**	Modern Slavery Act 2015 The Forest Law Enforcement, Governance and Trade Regulations 2012 The Timber and Timber Products (Placing on the Market) Regulations 2013 The Modern Slavery Act 2015 (Transparency in Supply Chains) Regulations 2015	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Circular economy statements and whole life cycle carbon assessments pushing further development of end of life strategy to waste on products, utilising waste as a resource. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite construction methods and using s products which minimise waste generation.

Procurement	Not utilising local suppliers for procurement	Using natural resources. Not taking responsibility for material selection.	3	1	**4**	Review of local suppliers to the project and allow for these to tender packages of work / equipment.	1	1	**2**	Modern Slavery Act 2015 The Forest Law Enforcement, Governance and Trade Regulations 2012 The Timber and Timber Products (Placing on the Market) Regulations 2013 The Modern Slavery Act 2015 (Transparency in Supply Chains) Regulations 2015	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Circular economy statements and whole life cycle carbon assessments pushing further development of end of life strategy to waste on products, utilising waste as a resource. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite construction methods and using s products which minimise waste generation.
Procurement	Plastic packaging - disposal	Using natural resources. Not taking responsibility for material selection.	3	1	**4**	Take-back schemes to prevent disposal of plastics on site and provide higher rates of recycling. Requesting materials with little to no packaging if available.	1	1	**2**	Modern Slavery Act 2015 The Plastic Packaging Tax (General) Regulations 2022	Contamination to air, land and watercourses. Carbon emissions leading to climate change and whole life carbon of a project.	Circular economy statements and whole life cycle carbon assessments pushing further development of end of life strategy to waste on products, utilising waste as a resource. Selecting products with Environmental Product Declarations (EPDs) to push suppliers into reviewing end of life strategy for their products. Innovation of offsite construction methods and using s products

												which minimise waste generation.
Procurement	Selecting MEP equipment	Using natural resources. Not taking responsibility for material selection. Noise-impact of the finished building by not following design recommendations and background noise surveys.	3	1	**4**	Selecting efficient equipment.	1	1	**2**	Control of Pollution Act 1974 Environmental Protection Act 1990 Noise & Statutory Nuisance Act 1993 The Noise Emissions in the Environment by Equipment for Use Outdoors Regulations 2001 as Amended 2005	Nuisance to neighbouring residents/businesses/fauna. Risk of not complying with local authority planning consent.	Fines and legal implications can be avoided.

Score Criteria:

Score Criteria			
Likelihood	**1** - Very Unlikely	**2** - Likely	**3** - Certain
Severity	**1** - Minor	**2** - Moderate	**3** - Very High
Gross Impact	**1 - 3** - Minor	**4** - Significant	**3** - Certain

Net Impact Score	Criteria
1 - 3 - Negligible	No additional control measures required.
4 - Significant	Aspect should be monitored and additional control measures may be required.
5 - 6 - Unacceptable	Activity generating this activity plus control measures must be reviewed.

Appendix H
Toolbox Talk and Register.

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Toolbox Talk – ENV004	
Topic/subject covered:	Contaminated Land

A: Details of the briefing

Location of briefing:	Basement Office	**Company:**	J. Redditington
Name of presenter:	Nishad Patel	**Position:**	PM
Date:		**Time:**	

B: Employee actions – Briefing/toolbox talk must be given before work starts – Include main parts of the briefing/toolbox talk in the below section, including actions which must be taken and avoided (Do's and Don'ts)

Purpose of Briefing
Land which has been used for industrial processes may be contaminated by wastes and fuels. When working on such sites special precautions may be required to prevent the contaminants from spreading into the wider environment and to protect workers from harm. The briefing will detail the hazards associated with contaminated land and the measures that should be taken to protect yourself and the surrounding environment from these hazards.
Hazards
• Health effects from exposure to dusts.
• Weak ground may not support plant or structures.
• Voids beneath the surface due to disused tanks and services.
• Asbestos waste.
• Run-off to rivers of sediments and contaminants.
• Chemicals - inhalation, ingestion.
• Radioactive waste.
• Fuels.
• Unexploded ordinance.
Reasons for Concern
The topic covers a wide range of hazards. The type and level of potential harm varies but may include:
• Harm to health of workers, visitors and trespassers ranging from skin and respiratory irritation to cancer, birth defects and death
• Harm to the ecosystem and the health of wildlife on the land being worked

• Harm to the ecosystem, or those using neighbouring land from run-off or spread of contamination
• Property damage and accidents to plant during construction, e.g. collapse of structures built on weak ground
• Corrosion to building materials and services
• Contamination of water including drinking water supplies (the works themselves, or new structures and services may cause contaminants to move through new pathways to ground and surface water sources)
• Harm to users of the land after construction works are complete, due to bringing contaminated soil closer to the surface, or a new type of occupancy exposes people to harm, e.g. vacant brownfield site converted to housing
• Trenches and confined spaces may be filled with toxic or asphyxiate gases due to land being disturbed
• Fire and explosion.
Your client or employer could be held liable if the work undertaken causes water pollution or risks to human health or the environment so it's important that you follow any systems of work which have been set up and also report promptly any new concerns you find on site.
Control Measures
• Your supervisor or manager should inform you of the types of contaminants which are likely to be present on site and the actions you need to take to avoid harm to yourself or others.
• Familiarise yourself with any risk assessments and safe systems of work for contaminated land, waste management and pollution control.
• Understand which materials are permitted to be reused on site and any restrictions which apply, and make sure you follow those rules.
• Be aware of the location of emergency spill materials on site and how to use them.
• Use designated wheel/vehicle wash areas.
• Make sure that you follow the site waste plan including for excavated material which may fall within the hazardous waste category on some sites.
• If you discover any unexpected materials, stop work and report it immediately so that the materials can be identified. Examples of such materials include:
* Buried drums, tanks, pipework or containers
* Soil or water which is strange colour or which has an unexpected smell (however, do not deliberately sniff an unknown substance)
* Other unexpected objects and materials
* Signs of oil present in soil or water.
• Wear the personal protective clothing you are instructed to wear.
• Wear the right respiratory protection for the job and follow any instructions you've been given, including information on how to wear it properly.
• Attend a face-fit test when asked to do so.
• Change disposable masks and filters regularly, report loss or damage and store masks in a clean dry place.
• Follow good hygiene practices to avoid cross contamination of your clean clothing.
• Wash your hands and face before eating, drinking or smoking, and only eat, drink or smoke in

Toolbox Talk – ENV004			
Topic/subject covered:	Contaminated Land		
Location of briefing:	Basement Site Office	**Company:**	J. Reddington

We the undersigned fully understand of the contents of this briefing/toolbox talk. If we are unable to carry out our work safely we agree that we must immediately stop work and inform our line manager or supervisor

Date	Print Name	Position/Role	Signature
	Daniele Campus	CARP	
	Jakup Wiadlenes	CARP	
	Claudio Console	CARP	
	ASTRIT ISAKAJ	CARP	
	Klajdi BALLIU	CARP	
	Maninder Singh	CAT	
	Harmail Singh	CAT	
	Jatinder Singh	CAT	
	Jagsir Singh	CAT	
	Orgest Hoxha	CARP	

Given by: Nishad Patel **Position:** PM **Signature:**

I confirm that the above delegates attended the above stated briefing/toolbox/training

Please ensure that a copy of this briefing/toolbox talk/training register is sent to the Training Department at Head Office – **jrl.training@jrlgroup.co.uk**

designated areas.
• Use disposable clothing or site laundry facilities as directed to avoid taking home contaminated laundry
• Follow any site rules for work in excavations or confined spaces.
• Report any concerns about contaminated land, the suspected release of pollutants, damage to bunds or pumps etc. to your supervisor, as a matter of urgency.
Key Points
• Disturbing contaminated land can damage your own health and that of others. It can also harm wildlife, and the wider ecosystem. Some contaminants can lead to more immediate damage by fire or explosion, structural collapse or enabling toxic gases to fill confined spaces.
• If contaminants are known to be present this will be explained by your supervisor or manager.
• Make sure you follow any site-specific rules to contain the contaminated materials in the designated areas.
• Protect yourself with good hygiene practices and the effective use of personal protective clothing.
• If you discover unexpected materials or new concerns, inform your supervisor or a manager immediately.

C: Employee actions – Briefing/toolbox talk must be given before work starts – Include main parts of the briefing/toolbox talk in the below section, including actions which must be taken and avoided (Do's and Don'ts)

Appendix I
Site Inspection Reports (Routine Reassurance Testing).

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4 Elstree Way
Borehamwood
WD6 1RN

27th September 2022

FAO: Frank Everett

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on three samples of soil and one sample of tarmac recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 13/09/2022. The samples represent made ground (soil and stones) and surface hardstanding (tarmac) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

1.0 WASTE CLASSIFICATION

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the site investigation but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 13/09/2022 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, samples of materials were recovered and included the following:

- Three samples of made ground from general excavation arisings (GA).
- One sample of tarmac (TM) from the surface hardstanding.

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

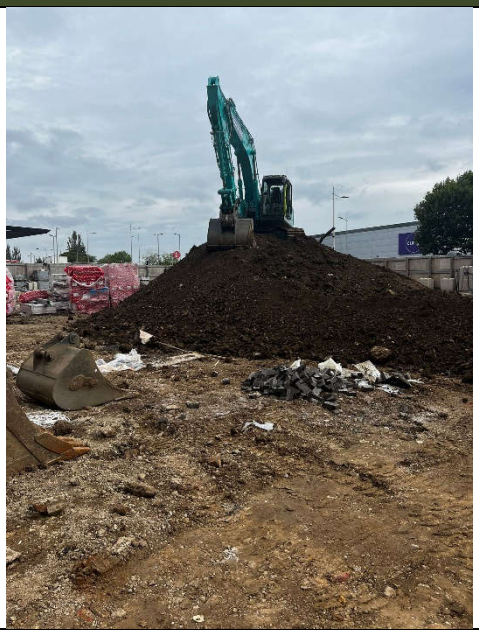
- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

- Bituminous mixtures containing coil tar (LoW Code 170301*) – MH.
- Bituminous mixtures other than those mentioned in 170301 (LoW Code 170302) – MN.

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4.1 Physical Appearance of the Waste

Made Ground - General Arisings (GA)

Sampling Date	Reference	Physical Description	Photograph
13/09/2022	GA/1309/01 GA/1309/02 GA/1309/03	Dark brown, sandy, silty, clay with gravel and occasional fragments of brick, concrete, clinker and tarmac. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

Surface Hardstanding – Tarmac (TM)

Sampling Date	Reference	Physical Description	Photograph
13/09/2022	TM/1309/01	Black, bituminous tarmacadam. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the tarmac arisings could be described as: Bituminous mixtures not containing coal tar (LoW Code 170302) - MN.	

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4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground - General Arisings (GA)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
GA/1309/01	NAD	No significant contamination	170504
GA/1309/02	NAD	No significant contamination	170504
GA/1309/03	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

The samples of made ground general arisings (GA) returned low concentrations of a wide range of potential contaminants that corroborated the physical assessment of the material. The arisings represented by the samples of stockpiled made ground would be properly classified as:

- Soil and stones not containing hazardous substances (LoW Code 170504).

Surface Hardstanding – Tarmac (TM)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
TM/1309/01	-	Low BaP and total PAH and no coal tar identified.	170302

The sample of tarmac returned low concentrations of benzo(a)pyrene (BaP and total polyaromatic hydrocarbons (PAH) and coal tar residue was not identified. The arisings represented by the sample of tarmac would be properly classified as:

- Bituminous materials not containing coal tar (LoW Code 170302).

5.0 SUMMARY

The material represented by all four samples (made ground and tarmac) would be suitable for acceptance and treatment at a typical soil and aggregates recycling facility (e.g. SR2010 No12, such as Knights Road) as uncontaminated soil and stones (LoW Code 170504) or as bituminous materials not containing coal tar (LoW Code 170302) assuming it remains physically clean and there is no evidence of contamination. We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g. an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci, CSci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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6.0 LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 22-83957

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road	**Samples received on:**	14/09/2022
Your job number:	TJ3885A01	**Samples instructed on/ Analysis started on:**	14/09/2022
Your order number:	TJ3885A01	**Analysis completed by:**	22/09/2022
Report Issue Number:	1	**Report issued on:**	22/09/2022
Samples Analysed:	3 soil samples		

Signed:

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 22-83957
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road
Your Order No: TJ3885A01

Lab Sample Number				2423795	2423796	2423797
Sample Reference				GA/1309/01	GA/1309/02	GA/1309/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				13/09/2022	13/09/2022	13/09/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	12	11
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SFS	SFS	SFS
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	8.5	8.5	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1500	1500	1300
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	800	840	850
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.4	0.42	0.42
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	399	418	424
Sulphide	mg/kg	1	MCERTS	2.4	2.2	3.8
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.9	0.9	0.9
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.57	0.53
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.16	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.99	1.1
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.94	1.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.76	0.82
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.49	0.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.77	1.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.25	0.33
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.59	0.74
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.31	0.4
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.39	0.45
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Total PAH						
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	6.22	7.31

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-83957
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road
Your Order No: TJ3885A01

Lab Sample Number				2423795	2423796	2423797
Sample Reference				GA/1309/01	GA/1309/02	GA/1309/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				13/09/2022	13/09/2022	13/09/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.7	3.8	3.1
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	15	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	190	140	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.81	0.88	0.79
Boron (water soluble)	mg/kg	0.2	MCERTS	1.9	0.8	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	24	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	44	40	35
Lead (aqua regia extractable)	mg/kg	1	MCERTS	220	180	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5	0.5	0.4
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1.2	1.2	1.1
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	21	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	38	42	39
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	140	140	120
Petroleum Hydrocarbons						
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	33	31	21

U/S = Unsuitable Sample I/S = Insufficient Sample

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-83957
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2423795	GA/1309/01	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.
2423796	GA/1309/02	None Supplied	None Supplied	Brown clay and loam with gravel.
2423797	GA/1309/03	None Supplied	None Supplied	Brown clay and loam with gravel.

Analytical Report Number : 22-83957
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 22-83957
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-84325

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London	**Samples received on:**	14/09/2022
Your job number:	TJ3885A04	**Samples instructed on/ Analysis started on:**	15/09/2022
Your order number:	TJ3885A04	**Analysis completed by:**	22/09/2022
Report Issue Number:	1	**Report issued on:**	22/09/2022
Samples Analysed:	1 non soil sample		

Signed:

Joanna Wawrzeczko
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 22-84325
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London
Your Order No: TJ3885A04

Lab Sample Number				2425721
Sample Reference				TM/1309/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				13/09/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	0.17
Total mass of sample received	kg	0.001	NONE	0.4

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	< 0.05
Acenaphthene	mg/kg	0.05	NONE	< 0.05
Fluorene	mg/kg	0.05	NONE	< 0.05
Phenanthrene	mg/kg	0.05	NONE	0.39
Anthracene	mg/kg	0.05	NONE	< 0.05
Fluoranthene	mg/kg	0.05	NONE	0.43
Pyrene	mg/kg	0.05	NONE	0.4
Benzo(a)anthracene	mg/kg	0.05	NONE	0.3
Chrysene	mg/kg	0.05	NONE	0.38
Benzo(b)fluoranthene	mg/kg	0.05	NONE	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	NONE	< 0.05
Benzo(a)pyrene	mg/kg	0.05	NONE	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	NONE	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	1.9

Miscellaneous Organics

Coal Tar		N/A	NONE	Not Identified
Total Residue	mg/kg	10	NONE	3800

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-84325
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2425721	TM/1309/01	None Supplied	None Supplied	Non Soil**

**Non MCERTS Matrix

Analytical Report Number : 22-84325
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Coal Tar in Soil	DCM Extraction with qualitative interpretation via GC/MS	In-house method	L064-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Our Ref. TJ3885BR1

J. Reddington Limited
4 Elstree Way
Borehamwood
WD6 1RN

25th October 2022

FAO: Frank Everett

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on three samples of soil and one sample of tarmac recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 11/10/2022. The samples represent made ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

1.0 WASTE CLASSIFICATION

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the site investigation but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 11/10/2022 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, samples of materials were recovered and included the following:

- Three samples of made ground from general excavation arisings (GA).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

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4.1 Physical Appearance of the Waste

Made Ground - General Arisings (GA)

Sampling Date	Reference	Physical Description	Photograph
11/10/2022	GA/1110/01 GA/1110/02 GA/1110/03	Dark brown, sandy, silty, clay with gravel and occasional fragments of brick and concrete, and rare fragments of wood and metal. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground - General Arisings (GA)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
GA/1110/01	NAD	No significant contamination	170504
GA/1110/02	NAD	No significant contamination	170504
GA/1110/03	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

The samples of made ground general arisings (GA) returned low concentrations of a wide range of potential contaminants that corroborated the physical assessment of the material. The arisings represented by the samples of stockpiled made ground would be properly classified as:

- Soil and stones not containing hazardous substances (LoW Code 170504).

5.0 SUMMARY

The material represented by all three samples (made ground) would be suitable for acceptance and treatment at a typical soil and aggregates recycling facility (e.g. SR2010 No12, such as Knights Road) as uncontaminated soil and stones (LoW Code 170504) assuming it remains physically clean and there is no evidence of contamination. We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g. an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

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We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci, CSci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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6.0 LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 22-89654

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17	**Samples received on:**	12/10/2022
Your job number:	TJ3885B01	**Samples instructed on/ Analysis started on:**	12/10/2022
Your order number:	TJ3885B01	**Analysis completed by:**	24/10/2022
Report Issue Number:	1	**Report issued on:**	24/10/2022
Samples Analysed:	3 soil samples		

Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of i2 Analytical Ltd.

Analytical Report Number: 22-89654
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17
Your Order No: TJ3885B01

Lab Sample Number				2458186	2458187	2458188
Sample Reference				GA/1110/01	GA/1110/02	GA/1110/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				11/10/2022	11/10/2022	11/10/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	20	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	10	12	10
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SZS	SZS	SZS

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.9	8.9	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1600	1700	1400
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1000	920	840
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.51	0.46	0.42
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	506	459	419
Sulphide	mg/kg	1	MCERTS	14	6.4	3.4
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.7	0.7	0.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.7	0.42	0.52
Anthracene	mg/kg	0.05	MCERTS	0.71	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	3.3	0.89	1.2
Pyrene	mg/kg	0.05	MCERTS	2.8	0.79	1.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.6	0.53	0.65
Chrysene	mg/kg	0.05	MCERTS	1.2	0.53	0.78
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.2	0.6	0.9
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.95	0.34	0.37
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.2	0.6	0.78
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.5	0.37	0.49
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.58	0.42	0.56
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	15.6	5.49	7.3

Analytical Report Number: 22-89654
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17
Your Order No: TJ3885B01

Lab Sample Number				2458186	2458187	2458188
Sample Reference				GA/1110/01	GA/1110/02	GA/1110/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				11/10/2022	11/10/2022	11/10/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	13	15
Barium (aqua regia extractable)	mg/kg	1	MCERTS	130	120	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.78	0.77	0.91
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	1.3	1.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	22	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	34	34	38
Lead (aqua regia extractable)	mg/kg	1	MCERTS	130	110	130
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1.3	1.1	1.1
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	19	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	46	37	37
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	130	140	120
Petroleum Hydrocarbons						
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	310	58	66

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-89654
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2458186	GA/1110/01	None Supplied	None Supplied	Brown loam and clay with gravel and stones.
2458187	GA/1110/02	None Supplied	None Supplied	Brown clay and sand with gravel and brick.
2458188	GA/1110/03	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 22-89654
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 22-89654
Project / Site name: Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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J. Reddington Limited
4 Elstree Way
Borehamwood
WD6 1RN

12th December 2022

FAO: Frank Everett

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 23/11/2022. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

1.0 WASTE CLASSIFICATION

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the site investigation but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 23/11/2022 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Three samples of made ground from general excavation/piling arisings (MG).
- One sample of natural ground from general excavation/piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

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4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
23/11/2022	MG/2311/01 MG/2311/02 MG/2311/03	Grey/ brown, slightly sandy, silty, clay with gravel and occasional fragments of brick and concrete, and rare fragments of wood and metal. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
23/11/2022	NAT/2311/01	Dark grey/brown, silty, clay with rare gravel. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (GA)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/2311/01	Fibres <0.001%	No significant contamination	170504
MG/2311/02	NAD	No significant contamination	170504
MG/2311/03	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/2311/01	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

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5.0 SUMMARY

No asbestos was observed during the sampling. Loose chrysotile fibres were detected in one sample of made ground, which was subject to quantification returning a concentration below the laboratory limit of detection. As such, the material represented by the samples (made ground and natural) would be classified as

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- MG/2311/01 Slightly elevated concentration of asbestos (Non-hazardous waste).
- *MG/2311/02 No significant contamination (Uncontaminated waste).*
- *MG/2311/03 No significant contamination (Uncontaminated waste).*
- *NAT/2311/01No significant contamination (Uncontaminated and inert waste).*

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g. an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

*****

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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6.0 LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 22-98429

Project / Site name:	Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE	**Samples received on:**	23/11/2022
Your job number:	TJ3885C01	**Samples instructed on/ Analysis started on:**	23/11/2022
Your order number:	TJ3885C01	**Analysis completed by:**	08/12/2022
Report Issue Number:	1	**Report issued on:**	08/12/2022
Samples Analysed:	3 soil samples		

Signed:

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 22-98429
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3885C01

Lab Sample Number				2509059	2509060	2509061
Sample Reference				MG/2311/01	MG/2311/02	MG/2311/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				23/11/2022	23/11/2022	23/11/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	17	19
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	-	-
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	SCA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.4	11.5	11.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	4400	5500	3700
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	810	950	730
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.4	0.47	0.36
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	403	475	363
Sulphide	mg/kg	1	NONE	130	180	140
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.7	0.5	0.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	0.17	0.16	0.13
Acenaphthylene	mg/kg	0.05	NONE	0.06	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	NONE	0.12	0.07	0.06
Fluorene	mg/kg	0.05	NONE	0.08	0.06	< 0.05
Phenanthrene	mg/kg	0.05	NONE	1	0.87	0.59
Anthracene	mg/kg	0.05	NONE	0.22	0.19	0.11
Fluoranthene	mg/kg	0.05	NONE	1.6	1.4	1.2
Pyrene	mg/kg	0.05	NONE	1.7	1.2	1.2
Benzo(a)anthracene	mg/kg	0.05	NONE	0.8	0.63	0.65
Chrysene	mg/kg	0.05	NONE	0.58	0.61	0.67
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.67	0.7	0.89
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.45	0.34	0.32
Benzo(a)pyrene	mg/kg	0.05	NONE	0.68	0.65	0.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.29	0.31	0.39
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	0.07	0.08	0.1
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.36	0.36	0.53
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	8.84	7.58	7.56

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-98429
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3885C01

Lab Sample Number				2509059	2509060	2509061
Sample Reference				MG/2311/01	MG/2311/02	MG/2311/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				23/11/2022	23/11/2022	23/11/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.6	< 1.0	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	11	9.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	110	180
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.72	0.79	0.72
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.4	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	21	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	37	31	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	85	61	90
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1.1	1.3	1.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	16	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	31	33	36
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	82	78	99
Petroleum Hydrocarbons						
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	NONE	76	< 10	50

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report relate only to the sample(s) submitted for testing.

UKAS TESTING
4041

Analytical i2 Environmental Science

Analytical Report Number: 22-98429
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3885C01

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2509059	MG/2311/01		170	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 22-98429
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2509059	MG/2311/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2509060	MG/2311/02	None Supplied	None Supplied	Brown clay and sand with gravel.
2509061	MG/2311/03	None Supplied	None Supplied	Brown clay and sand.

Analytical Report Number : 22-98429
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 22-98429
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-98432

Project / Site name:	Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE	**Samples received on:**	23/11/2022
Your job number:	TJ3885C02	**Samples instructed on/ Analysis started on:**	23/11/2022
Your order number:	TJ3885C02	**Analysis completed by:**	09/12/2022
Report Issue Number:	1	**Report issued on:**	09/12/2022
Samples Analysed:	1 soil sample		

Izabela Wójcik

Signed:

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 22-98432
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3885C02

Lab Sample Number				2509124
Sample Reference				NAT/2311/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				23/11/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	18
Total mass of sample received	kg	0.001	NONE	1.2

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MWI

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	3100
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1000
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.5
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	499
Sulphide	mg/kg	1	NONE	21
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	< 0.05
Acenaphthene	mg/kg	0.05	NONE	< 0.05
Fluorene	mg/kg	0.05	NONE	< 0.05
Phenanthrene	mg/kg	0.05	NONE	0.59
Anthracene	mg/kg	0.05	NONE	0.1
Fluoranthene	mg/kg	0.05	NONE	0.74
Pyrene	mg/kg	0.05	NONE	0.74
Benzo(a)anthracene	mg/kg	0.05	NONE	0.35
Chrysene	mg/kg	0.05	NONE	0.42
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.45
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.14
Benzo(a)pyrene	mg/kg	0.05	NONE	0.35
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	NONE	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	3.88

Analytical Report Number: 22-98432
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3885C02

Lab Sample Number				2509124
Sample Reference				NAT/2311/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				23/11/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	93
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.87
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	39
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.92
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	38
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	67
Petroleum Hydrocarbons				
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	NONE	31

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-98432
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2509124	NAT/2311/01	None Supplied	None Supplied	Brown clay and sand.

Analytical Report Number : 22-98432
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 22-98432
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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20th December 2022

FAO: Frank Everett

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 30/11/2022. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

1.0 WASTE CLASSIFICATION

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigation but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 30/11/2022 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Three samples of made ground from arisings from the excavation for water attenuation tanks (MG).
- One sample of natural ground from a stockpile of piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

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4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
30/11/2022	MG/3011/01 MG/3011/02 MG/3011/03	Grey/ brown, slightly sandy, silty, clay with gravel and occasional fragments of brick and concrete, and rare fragments of wood and metal. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
30/11/2022	NAT/3011/01	Grey/brown, silty, clay with rare gravel. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (GA)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/3011/01	NAD	No significant contamination	170504
MG/3011/02	NAD	No significant contamination	170504
MG/3011/03	NAD	Elevated pH, but considered to be due to the presence of alkaline construction materials (e.g. concrete) in the sample that are crushed during sample preparation. Otherwise, no significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/3011/01	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

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5.0 SUMMARY

No asbestos was observed during the sampling and none was detected in the samples, which all returned low concentrations of potential contaminants. One sample (MG/3011/03) did return an elevated pH, but this is considered to be due to the presence of alkaline construction materials (e.g. concrete) in the sample that are crushed during sample preparation rather than the presence of other corrosive materials. As such, the material represented by the samples (made ground and natural) would be classified as

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *MG/3011/01* *No significant contamination (Uncontaminated waste).*
- *MG/3011/02* *No significant contamination (Uncontaminated waste).*
- *MG/3011/03* *No significant contamination (Uncontaminated waste).*

- *NAT/3011/01* *No significant contamination (Uncontaminated and inert waste).*

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g. an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

*****

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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6.0 LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 22-10866

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE	**Samples received on:**	01/12/2022
Your job number:	TJ3885C03	**Samples instructed on/ Analysis started on:**	01/12/2022
Your order number:	TJ3885C03	**Analysis completed by:**	16/12/2022
Report Issue Number:	1	**Report issued on:**	16/12/2022
Samples Analysed:	3 soil samples		

Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-10866
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3885C03

Lab Sample Number				2518903	2518904	2518905
Sample Reference				MG 3011 01	MG 3011 02	MG 3011 03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				30/11/2022	30/11/2022	30/11/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	17	11
Total mass of sample received	kg	0.001	NONE	1.7	1.7	1.7
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	11.1	8.8	11.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	7500	1200	6400
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1300	1100	490
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.67	0.56	0.24
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	672	555	244
Sulphide	mg/kg	1	MCERTS	220	17	150
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	0.2	0.4
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	0.1*	< 0.05*	< 0.05*
Acenaphthylene	mg/kg	0.05	MCERTS	0.08*	< 0.05*	0.06*
Acenaphthene	mg/kg	0.05	MCERTS	0.1*	< 0.05	*
Fluorene	mg/kg	0.05	MCERTS	0.08*	< 0.05	0.05*
Phenanthrene	mg/kg	0.05	MCERTS	0.76*	0.09*	0.33*
Anthracene	mg/kg	0.05	MCERTS	0.18*	< 0.05	0.09*
Fluoranthene	mg/kg	0.05	MCERTS	1.2*	0.18*	0.62*
Pyrene	mg/kg	0.05	MCERTS	1.2*	0.19*	0.55*
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.57	0.1	0.3
Chrysene	mg/kg	0.05	MCERTS	0.59*	0.1*	0.3*
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.82*	0.17*	0.41*
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.19*	0.07*	0.15*
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.58	0.11	0.28
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.3	< 0.05	0.17
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.33*	0.08*	0.19*
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Total PAH						
Total WAC-17 PAHs	mg/kg	0.85	NONE	7.07*	1.09*	3.56*

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-10866
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3885C03

Lab Sample Number				2518903	2518904	2518905
Sample Reference				MG 3011 01	MG 3011 02	MG 3011 03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				30/11/2022	30/11/2022	30/11/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.1	2.3	2.7
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	14	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	82	98
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.75	1	0.73
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	1.6	1.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	31	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	23	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	100	25	68
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.6	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.89	0.66	1.1
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	48	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	51	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	86	66	73
Petroleum Hydrocarbons						
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	110	< 10	44

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-10866
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2518903	MG 3011 01	None Supplied	None Supplied	Brown loam and clay with rubble and brick.
2518904	MG 3011 02	None Supplied	None Supplied	Brown clay and loam with gravel.
2518905	MG 3011 03	None Supplied	None Supplied	Brown clay and loam with gravel and brick.

Analytical Report Number : 22-10866
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 22-10866
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-10889

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Load, London N17 9NU	**Samples received on:**	01/12/2022
Your job number:	TJ3885C04	**Samples instructed on/ Analysis started on:**	01/12/2022
Your order number:	TJ3885C04	**Analysis completed by:**	15/12/2022
Report Issue Number:	1	**Report issued on:**	16/12/2022
Samples Analysed:	1 soil sample		

Signed:

Joanna Wawrzeczko
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-10889
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Load, London N17 9NU
Your Order No: TJ3885C04

Lab Sample Number				2519003
Sample Reference				NAT/3011/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				30/11/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	9.7
Moisture Content	%	0.01	NONE	20
Total mass of sample received	kg	0.001	NONE	1.2

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EC

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	650
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	750
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.38
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	377
Sulphide	mg/kg	1	MCERTS	930
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.9

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-10889
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Load, London N17 9NU
Your Order No: TJ3885C04

Lab Sample Number				2519003
Sample Reference				NAT/3011/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				30/11/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2
Boron (water soluble)	mg/kg	0.2	MCERTS	2.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	36
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.53
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	49
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	72
Petroleum Hydrocarbons				
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-10889
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Load, London N17 9NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2519003	NAT/3011/01	None Supplied	None Supplied	Brown clay with gravel.

Analytical Report Number : 22-10889
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Load, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 22-10889
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Load, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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9th January 2023

FAO: Frank Everett

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on three samples of soil and one sample of imported aggregate recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 09/12/2022. The samples represent soil and stones being generated from enabling works excavations and piling and will be excess to requirements and need to be removed from site and aggregate being imported to site for placement as part of a pile mat.

1.0 WASTE CLASSIFICATION

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigation but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 09/12/2022 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Three samples of soil and stones from a stockpile of piling arisings (MG).
- One sample of imported aggregate (6F5).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

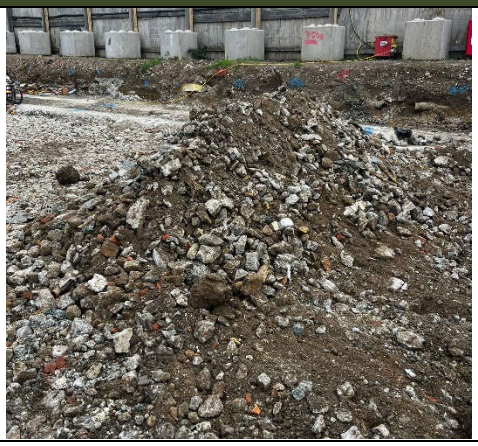
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4.1 Physical Appearance of the Waste

Piling Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
09/12/2022	MG/0912/01 MG/0912/02 MG/0912/03	Grey/ brown, slightly sandy, silty, clay with rare/incidental fragments of brick and concrete. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

Imported Aggregate (6F5)

Sampling Date	Reference	Physical Description	Photograph
09/12/2022	6F5/0912/01	Grey/brown, sandy gravel of concrete and brick. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/0912/01	NAD	No significant contamination	170504
MG/0912/02	NAD	No significant contamination	170504
MG/0912/03	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Imported Aggregate (6F5)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
6F5/0912/01	NAD	No significant contamination	n/a

NAD No asbestos observed during sample preparation or detected in the sample.

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5.0 SUMMARY

No asbestos was observed during the sampling and none was detected in the samples, which all returned low concentrations of potential contaminants.

The sample of imported aggregate did return an elevated pH, but this is considered to be due to the presence of alkaline construction materials (e.g., concrete) in the sample that are crushed during sample preparation rather than the presence of other corrosive materials.

The material represented by the samples (piling arisings) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *MG/0912/01* *No significant contamination (Uncontaminated waste).*
- *MG/0912/02* *No significant contamination (Uncontaminated waste).*
- *MG/0912/03* *No significant contamination (Uncontaminated waste).*

Furthermore, the predominantly natural ground with only incidental inclusions of brick and concrete may also be considered suitable for reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

The imported aggregate was free from significant contamination.

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g. an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

*****

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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6.0 LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 22-12326

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU	**Samples received on:**	09/12/2022
Your job number:	TJ3885D02	**Samples instructed on/ Analysis started on:**	09/12/2022
Your order number:	TJ3885D02	**Analysis completed by:**	09/01/2023
Report Issue Number:	1	**Report issued on:**	09/01/2023
Samples Analysed:	1 soil sample		

Signed:

Elżbieta Suchy
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-12326
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3885D02

Lab Sample Number				2527459
Sample Reference				6F5-0912-01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				09/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	8.5
Total mass of sample received	kg	0.001	NONE	1.5

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SZS

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	4300
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	98
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.049
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	49.2
Sulphide	mg/kg	1	MCERTS	130
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs*

Naphthalene	mg/kg	0.05	NONE	0.14
Acenaphthylene	mg/kg	0.05	NONE	< 0.05
Acenaphthene	mg/kg	0.05	NONE	0.06
Fluorene	mg/kg	0.05	NONE	0.08
Phenanthrene	mg/kg	0.05	NONE	0.59
Anthracene	mg/kg	0.05	NONE	0.16
Fluoranthene	mg/kg	0.05	NONE	0.98
Pyrene	mg/kg	0.05	NONE	0.82
Benzo(a)anthracene	mg/kg	0.05	NONE	0.41
Chrysene	mg/kg	0.05	NONE	0.4
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.38
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.3
Benzo(a)pyrene	mg/kg	0.05	NONE	0.35
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.22
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	0.07
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.27
Coronene	mg/kg	0.05	NONE	< 0.05

Total PAH*

Total WAC-17 PAHs	mg/kg	0.85	NONE	5.23

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Analytical Report Number: 22-12326
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3885D02

Lab Sample Number				2527459
Sample Reference				6F5-0912-01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				09/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.7
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.72
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33
Lead (aqua regia extractable)	mg/kg	1	MCERTS	56
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1.1
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	32
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	84
Petroleum Hydrocarbons				
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	16

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-12326
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2527459	6F5-0912-01	None Supplied	None Supplied	Brown sandy loam with concrete.

Analytical Report Number : 22-12326
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 22-12326
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-12330

Project / Site name:	Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE	**Samples received on:**	09/12/2022
Your job number:	TJ3885D01	**Samples instructed on/ Analysis started on:**	09/12/2022
Your order number:	TJ3885D01	**Analysis completed by:**	02/01/2023
Report Issue Number:	1	**Report issued on:**	03/01/2023
Samples Analysed:	3 soil samples		

Signed:

Elżbieta Suchy
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-12330
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3885D01

Lab Sample Number				2527474	2527475	2527476
Sample Reference				MG/0912/01	MG/0912/02	MG/0912/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				09/12/2022	09/12/2022	09/12/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	31
Moisture Content	%	0.01	NONE	13	12	16
Total mass of sample received	kg	0.001	NONE	1.6	1.6	1.6
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	SCA
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	11.1	11.2	11.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	3000	3400	3100
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	610	740	590
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.3	0.37	0.3
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	303	369	295
Sulphide	mg/kg	1	MCERTS	190	140	220
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.5	0.6	0.7
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	0.08	0.12	0.08
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.09	0.14	0.08
Phenanthrene	mg/kg	0.05	MCERTS	0.72	1.1	0.51
Anthracene	mg/kg	0.05	MCERTS	0.14	0.23	0.13
Fluoranthene	mg/kg	0.05	MCERTS	0.94	1.4	0.82
Pyrene	mg/kg	0.05	MCERTS	0.84	1.3	0.74
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.42	0.76	0.38
Chrysene	mg/kg	0.05	MCERTS	0.48	0.67	0.34
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.49	0.72	0.4
Benzo(k)fluoranthene*	mg/kg	0.05	NONE	0.26	0.42	0.22
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.43	0.65	0.36
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.23	0.37	0.26
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.06	0.09	0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.31	0.43	0.28
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Total PAH						
Total WAC-17 PAHs	mg/kg	0.85	NONE	5.49	8.4	4.65

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Analytical Report Number: 22-12330
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3885D01

Lab Sample Number				2527474	2527475	2527476
Sample Reference				MG/0912/01	MG/0912/02	MG/0912/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				09/12/2022	09/12/2022	09/12/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	2.5	2.9
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	10	9.2
Barium (aqua regia extractable)	mg/kg	1	MCERTS	130	130	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.79	0.7	0.77
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	0.6	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	19	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29	30	28
Lead (aqua regia extractable)	mg/kg	1	MCERTS	61	62	79
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1.1	0.96	0.84
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	16	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	32	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	73	96	68
Petroleum Hydrocarbons*						
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	NONE	38	40	41

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

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Analytical Report Number : 22-12330
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2527474	MG/0912/01	None Supplied	None Supplied	Brown clay and sand with gravel and vegetation.
2527475	MG/0912/02	None Supplied	None Supplied	Brown clay and sand with gravel and vegetation.
2527476	MG/0912/03	None Supplied	None Supplied	Brown clay and sand with gravel and stones.

Analytical Report Number : 22-12330
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 22-12330
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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4 Elstree Way
Borehamwood
WD6 1RN

5th January 2023

FAO: Frank Everett

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on three samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 14/12/2022. The samples represent soil and stones being generated from enabling works excavations and piling and will be excess to requirements and need to be removed from site.

1.0 WASTE CLASSIFICATION

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigation but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 14/12/2022 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Three samples of soil and stones from a stockpile of piling arisings (MG).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

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4.1 Physical Appearance of the Waste

Piling Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
14/12/2022	MG/1412/01 MG/1412/02 MG/1412/03	Brown, slightly sandy, silty, clay with rare/incidental fragments of brick and concrete. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/1412/01	NAD	No significant contamination	170504
MG/1412/02	NAD	No significant contamination	170504
MG/1412/03	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling and none was detected in the samples, which all returned low concentrations of potential contaminants. As such, the material represented by the samples (piling arisings) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *MG/1412/01* *No significant contamination (Uncontaminated waste).*
- *MG/1412/02* *No significant contamination (Uncontaminated waste).*
- *MG/1412/03* *No significant contamination (Uncontaminated waste).*

Furthermore, the predominantly natural ground with only incidental inclusions of brick and concrete may also be considered suitable for reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g. an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures.

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Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
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Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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6.0 LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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WD18 8YS

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Analytical Report Number : 22-13103

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU	**Samples received on:**	14/12/2022
Your job number:	TJ3885D03	**Samples instructed on/ Analysis started on:**	14/12/2022
Your order number:	TJ3885D03	**Analysis completed by:**	29/12/2022
Report Issue Number:	1	**Report issued on:**	29/12/2022
Samples Analysed:	3 soil samples		

Signed:

Elżbieta Suchy
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-13103
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3885D03

Lab Sample Number				2532332	2532333	2532334
Sample Reference				MG/1412/01	MG/1412/02	MG/1412/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				14/12/2022	14/12/2022	14/12/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	80
Moisture Content	%	0.01	NONE	9.9	12	6.2
Total mass of sample received	kg	0.001	NONE	1.6	1.6	1.6
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	ASE	ASE	ASE
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	10.5	10.8	11.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1100	880	1800
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	520	310	280
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.26	0.15	0.14
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	260	154	141
Sulphide	mg/kg	1	MCERTS	260	230	170
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.2	0.4	0.2
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	0.41	0.35	0.29
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.12	0.17	0.19
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.15	0.32	0.17
Pyrene	mg/kg	0.05	MCERTS	0.13	0.26	0.15
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.07	0.18	0.08
Chrysene	mg/kg	0.05	MCERTS	0.06	0.15	0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.08	0.14	0.07
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.09	0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.1	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.07	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.09	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Total PAH						
Total WAC-17 PAHs	mg/kg	0.85	NONE	1.02	1.92	1.05

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-13103
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3885D03

Lab Sample Number				2532332	2532333	2532334
Sample Reference				MG/1412/01	MG/1412/02	MG/1412/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				14/12/2022	14/12/2022	14/12/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	11	6.9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	85	86	47
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.72	0.72	0.48
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	0.8	1.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	16	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	11	6.9
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14	16	10
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.37	0.46	0.36
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	16	10
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	31	20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	31	33	21
Petroleum Hydrocarbons						
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-13103
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2532332	MG/1412/01	None Supplied	None Supplied	Light brown clay and sand with gravel.
2532333	MG/1412/02	None Supplied	None Supplied	Brown clay and sand with gravel.
2532334	MG/1412/03	None Supplied	None Supplied	Brown clay with gravel and stones.

Analytical Report Number : 22-13103
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 22-13103
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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10th January 2023

FAO: Frank Everett

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on three samples of soil and one sample of imported aggregate recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 21/12/2022. The samples represent soil and stones being generated from enabling works excavations and piling and will be excess to requirements and need to be removed from site and aggregate being imported to site for placement as part of a pile mat.

1.0 WASTE CLASSIFICATION

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigation but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 21/12/2022 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Three samples of soil and stones from a stockpile of piling arisings (NAT).
- One sample of imported aggregate (6F5).

4.0 MATERIALS ASSESSMENT

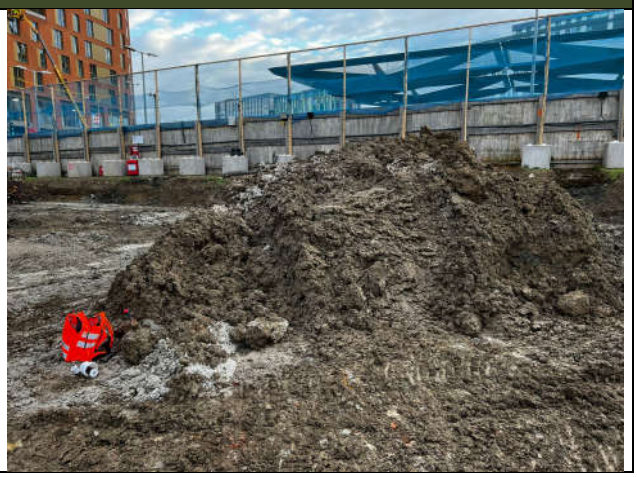
In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

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4.1 Physical Appearance of the Waste

Piling Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
21/12/2022	NAT/2112/01 NAT/2112/02 NAT/2112/03	Grey/ brown, slightly sandy, silty, clay with rare/incidental fragments of brick and concrete. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

Imported Aggregate (6F5)

Sampling Date	Reference	Physical Description	Photograph
21/12/2022	6F5/2112/01	Grey/brown, sandy gravel of concrete and brick. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Piling Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/2112/01	NAD	No significant contamination	170504
NAT/2112/02	NAD	No significant contamination	170504
NAT/2112/03	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Imported Aggregate (6F5)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
6F5/2112/01	NAD	No significant contamination	n/a

NAD No asbestos observed during sample preparation or detected in the sample.

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5.0 SUMMARY

No asbestos was observed during the sampling and none was detected in the samples, which all returned low concentrations of potential contaminants.

The sample of imported aggregate did return an elevated pH, but this is considered to be due to the presence of alkaline construction materials (e.g., concrete) in the sample that are crushed during sample preparation rather than the presence of other corrosive materials.

The material represented by the samples (piling arisings) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *NAT/2112/01* *No significant contamination (Uncontaminated waste).*
- *NAT/2112/02* *No significant contamination (Uncontaminated waste).*
- *NAT/2112/03* *No significant contamination (Uncontaminated waste).*

Furthermore, the predominantly natural ground with only incidental inclusions of brick and concrete may also be considered suitable for reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

The imported aggregate was free from significant contamination.

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g. an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

*****

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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6.0 LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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e: reception@i2analytical.com

Analytical Report Number : 22-14411

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE	**Samples received on:**	21/12/2022
Your job number:	TJ3885D05	**Samples instructed on/ Analysis started on:**	21/12/2022
Your order number:	TJ3885D05	**Analysis completed by:**	09/01/2023
Report Issue Number:	1	**Report issued on:**	09/01/2023
Samples Analysed:	3 soil samples		

Izabela Wójcik

Signed:

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-14411
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3885D05

Lab Sample Number				2540838	2540839	2540840
Sample Reference				NAT/2112/01	NAT/2112/02	NAT/2112/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				21/12/2022	21/12/2022	21/12/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	15	14
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.2	10.6	10.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	3500	3500	3600
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	780	1100	1100
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.39	0.55	0.56
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	391	555	557
Sulphide	mg/kg	1	MCERTS	280	230	400
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.4	0.3	0.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0

Speciated PAHs*

Naphthalene	mg/kg	0.05	NONE	0.65	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	NONE	0.26	< 0.05	0.09
Fluorene	mg/kg	0.05	NONE	0.25	0.06	0.08
Phenanthrene	mg/kg	0.05	NONE	1.5	0.41	0.56
Anthracene	mg/kg	0.05	NONE	0.41	0.09	0.16
Fluoranthene	mg/kg	0.05	NONE	1.6	0.63	0.85
Pyrene	mg/kg	0.05	NONE	1.6	0.6	0.79
Benzo(a)anthracene	mg/kg	0.05	NONE	0.73	0.27	0.35
Chrysene	mg/kg	0.05	NONE	0.53	0.22	0.27
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.71	0.25	0.36
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.2	0.16	0.15
Benzo(a)pyrene	mg/kg	0.05	NONE	0.5	0.19	0.25
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.23	0.15	0.17
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.27	0.16	0.16
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH*

Total WAC-17 PAHs	mg/kg	0.85	NONE	9.36	3.19	4.24

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-14411
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3885D05

Lab Sample Number				2540838	2540839	2540840
Sample Reference				NAT/2112/01	NAT/2112/02	NAT/2112/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				21/12/2022	21/12/2022	21/12/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.7	7.7	7.6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	160	120
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.77	0.81	0.83
Boron (water soluble)	mg/kg	0.2	MCERTS	2.3	2.7	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	17	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	19	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	33	32	30
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.69	0.67	0.67
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	12	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	31	32	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	55	50	49
Petroleum Hydrocarbons						
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	26	23	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-14411

Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2540838	NAT/2112/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2540839	NAT/2112/02	None Supplied	None Supplied	Brown clay and sand with gravel.
2540840	NAT/2112/03	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 22-14411
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 22-14411
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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e: reception@i2analytical.com

Analytical Report Number : 22-14416

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU	**Samples received on:**	21/12/2022
Your job number:	TJ3885D06	**Samples instructed on/ Analysis started on:**	21/12/2022
Your order number:	TJ3885D06	**Analysis completed by:**	09/01/2023
Report Issue Number:	1	**Report issued on:**	09/01/2023
Samples Analysed:	1 soil sample		

Signed:

Anna Goc
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-14416
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3885D06

Lab Sample Number				2540848
Sample Reference				6F5/2112/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				21/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	44
Moisture Content	%	0.01	NONE	9
Total mass of sample received	kg	0.001	NONE	1.2

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	5500
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	130
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.066
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	66.2
Sulphide	mg/kg	1	MCERTS	230
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs*

Naphthalene	mg/kg	0.05	NONE	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	0.07
Acenaphthene	mg/kg	0.05	NONE	0.1
Fluorene	mg/kg	0.05	NONE	0.14
Phenanthrene	mg/kg	0.05	NONE	0.93
Anthracene	mg/kg	0.05	NONE	0.2
Fluoranthene	mg/kg	0.05	NONE	1.4
Pyrene	mg/kg	0.05	NONE	1.2
Benzo(a)anthracene	mg/kg	0.05	NONE	0.61
Chrysene	mg/kg	0.05	NONE	0.48
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.57
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.4
Benzo(a)pyrene	mg/kg	0.05	NONE	0.51
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.31
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.28
Coronene	mg/kg	0.05	NONE	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	7.26

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Analytical Report Number: 22-14416
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3885D06

Lab Sample Number				2540848
Sample Reference				6F5/2112/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				21/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10
Barium (aqua regia extractable)	mg/kg	1	MCERTS	100
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.71
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	44
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.73
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.5
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	24
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	56
Petroleum Hydrocarbons				
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	45

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

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Analytical Report Number : 22-14416

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2540848	6F5/2112/01	None Supplied	None Supplied	Brown clay and sand with gravel and stones.

Analytical Report Number : 22-14416
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2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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WD6 1RN

25th January 2023

FAO: Frank Everett

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on two samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 04/01/2023. The samples represent soil and stones being generated from enabling works excavations and piling and will be excess to requirements and need to be removed from site.

1.0 WASTE CLASSIFICATION

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigation but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 04/01/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Two samples of soil and stones from a stockpile of piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

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4.1 Physical Appearance of the Waste

Piling Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
04/01/2023	NAT/0401/01 NAT/0401/02	Grey/ brown, slightly sandy, silty, clay with rare/incidental fragments of brick and concrete. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Piling Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/0401/01	NAD	No significant contamination	170504
NAT/0401/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling and none was detected in the samples, which all returned low concentrations of potential contaminants. The material represented by the samples (piling arisings) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *NAT/2112/01* *No significant contamination (Uncontaminated waste).*
- *NAT/2112/02* *No significant contamination (Uncontaminated waste).*

Furthermore, the predominantly natural ground with only incidental inclusions of brick and concrete may also be considered suitable for reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g. an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on

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any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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6.0 LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
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e: reception@i2analytical.com

Analytical Report Number : 23-10393

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU	**Samples received on:**	05/01/2023
Your job number:	TJ3885E02	**Samples instructed on/ Analysis started on:**	05/01/2023
Your order number:	TJ3885E02	**Analysis completed by:**	12/01/2023
Report Issue Number:	1	**Report issued on:**	19/01/2023
Samples Analysed:	2 soil samples		

Signed:

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-10393
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3885E02

Lab Sample Number				2546336	2546337
Sample Reference				NAT/0401/01	NAT/0401/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				04/01/2023	04/01/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	16
Total mass of sample received	kg	0.001	NONE	1.1	1.1

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	ASE	ASE

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.8	11
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	2800	2800
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1600	1300
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.82	0.66
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	822	665
Sulphide	mg/kg	1	MCERTS	340	230
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.3	0.13
Anthracene	mg/kg	0.05	MCERTS	0.07	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.57	0.14
Pyrene	mg/kg	0.05	MCERTS	0.45	0.13
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.3	0.09
Chrysene	mg/kg	0.05	MCERTS	0.31	0.07
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.33*	0.07*
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.15*	< 0.05*
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.23	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.13	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.13	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	2.97	< 0.85

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-10393
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3885E02

Lab Sample Number				2546336	2546337
Sample Reference				NAT/0401/01	NAT/0401/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				04/01/2023	04/01/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.2	1.5
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.6	6.6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	99	93
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.93	0.8
Boron (water soluble)	mg/kg	0.2	MCERTS	1.1	2.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	38	34
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17	16
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.49	0.49
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	37	30
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	60
Petroleum Hydrocarbons					
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	14	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and therefore may be unreliable.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 23-10393
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2546336	NAT/0401/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2546337	NAT/0401/02	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 23-10393
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 23-10393
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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4 Elstree Way
Borehamwood
WD6 1RN

24th October 2023

FAO: Lee Armstrong

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 12/10/2023. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 12/10/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Three samples of made ground from arisings from the reduced level excavations (MG).
- One sample of natural ground from a stockpile of piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

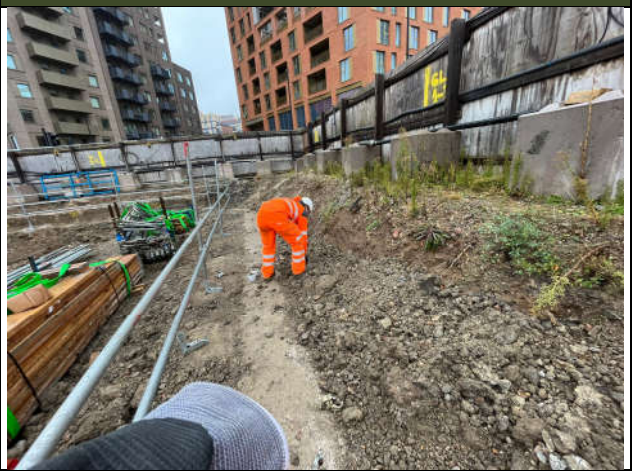
- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
12/10/2023	MG/1210/01 MG/1210/02 MG/1210/03	Grey/ brown, slightly sandy, silty, clay with gravel and occasional fragments of brick and concrete, and rare fragments of wood and metal. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
12/10/2023	NAT/1210/01	Grey/brown, silty, clay with rare gravel. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/1210/01	NAD	Elevated pH, but considered to be due to the presence of alkaline construction materials (e.g., concrete) in the sample that are crushed during sample preparation. Otherwise, no significant contamination.	170504
MG/1210/02	NAD		170504
MG/1210/03	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/1210/01	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. Two samples (MG/1210/01 and MG/1210/02) did return an elevated pH, but this is considered to be due to the presence of alkaline construction materials (e.g. concrete) in the sample that are crushed during sample preparation rather than the presence of other corrosive materials. As such, the material represented by the samples would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *MG/1210/01 No significant contamination (Uncontaminated waste).*
- *MG/1210/02 No significant contamination (Uncontaminated waste).*
- *MG/1210/03 No significant contamination (Uncontaminated waste).*
- *NAT/1210/01 No significant contamination (Uncontaminated and inert waste).*

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 23-62444

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE	**Samples received on:**	13/10/2023
Your job number:	TJ3994A01	**Samples instructed on/ Analysis started on:**	13/10/2023
Your order number:	TJ3994A01	**Analysis completed by:**	20/10/2023
Report Issue Number:	1	**Report issued on:**	20/10/2023
Samples Analysed:	3 soil samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

Analytical Report Number: 23-62444
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3994A01

Lab Sample Number				2844527	2844528	2844529
Sample Reference				MG/1210/01	MG/1210/02	MG/1210/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				12/10/2023	12/10/2023	12/10/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	11	11
Total mass of sample received	kg	0.001	NONE	1.4	1.4	1.3
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	SSZ	SSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	12	12	10.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	5900	5400	3900
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	440	440	1600
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.219	0.221	0.798
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	219	221	798
Sulphide	mg/kg	1	MCERTS	88	120	29
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.4	0.5	0.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.35	0.16	0.22
Acenaphthylene	mg/kg	0.05	MCERTS	0.05	0.05	0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.08	0.06	0.06
Fluorene	mg/kg	0.05	MCERTS	0.09	< 0.05	0.06
Phenanthrene	mg/kg	0.05	MCERTS	0.36	0.4	0.46
Anthracene	mg/kg	0.05	MCERTS	0.08	0.09	0.11
Fluoranthene	mg/kg	0.05	MCERTS	0.57	0.59	0.87
Pyrene	mg/kg	0.05	MCERTS	0.57	0.56	0.86
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.26	0.27	0.44
Chrysene	mg/kg	0.05	MCERTS	0.28	0.28	0.4
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.32	0.32	0.49
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.17	0.14	0.21
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.28	0.29	0.41
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.15	0.15	0.22
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.06
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.17	0.17	0.24
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	3.78	3.53	5.16

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Analytical Report Number: 23-62444
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3994A01

Lab Sample Number				2844527	2844528	2844529
Sample Reference				MG/1210/01	MG/1210/02	MG/1210/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				12/10/2023	12/10/2023	12/10/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.2	< 1.0	3.6
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	12	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	120	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.78	0.88	0.81
Boron (water soluble)	mg/kg	0.2	MCERTS	1	1.2	1.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	21	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	43	53	52
Lead (aqua regia extractable)	mg/kg	1	MCERTS	61	67	88
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1.6	1.1	0.94
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	15	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	37	35	37
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	96	88	94
Petroleum Hydrocarbons						
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	89	< 10	55

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-62444
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2844527	MG/1210/01	None Supplied	None Supplied	Brown sandy clay with gravel.
2844528	MG/1210/02	None Supplied	None Supplied	Brown clay and sand with gravel.
2844529	MG/1210/03	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 23-62444
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-62444
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-62446

Project / Site name:	Ferry Island,Tottenham Hale (Plot B), High Cross Road, London N17 9NU	**Samples received on:**	13/10/2023
Your job number:	TJ3994A02	**Samples instructed on/ Analysis started on:**	13/10/2023
Your order number:	TJ3994A02	**Analysis completed by:**	20/10/2023
Report Issue Number:	1	**Report issued on:**	20/10/2023
Samples Analysed:	1 soil sample		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-62446
Project / Site name: Ferry Island,Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3994A02

Lab Sample Number				2844586
Sample Reference				NAT/1210/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				12/10/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	16
Total mass of sample received	kg	0.001	NONE	1.4

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1600
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1400
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.708
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	708
Sulphide	mg/kg	1	MCERTS	120
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.41
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.07
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.07
Pyrene	mg/kg	0.05	MCERTS	0.06
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85

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The results included within the report relate only to the sample(s) submitted for testing.

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Your Order No: TJ3994A02

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Sample Reference				NAT/1210/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				12/10/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	54
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.9
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	34
Lead (aqua regia extractable)	mg/kg	1	MCERTS	24
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	34
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	42
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	62
Petroleum Hydrocarbons				
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2844586	NAT/1210/01	None Supplied	None Supplied	Brown sandy clay with gravel.

Analytical Report Number : 23-62446
Project / Site name: Ferry Island,Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-62446
Project / Site name: Ferry Island,Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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31st October 2023

FAO: Lee Armstrong

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 19/10/2023. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 19/10/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Three samples of made ground from arisings from the reduced level excavations (MG).
- One sample of natural ground from a stockpile of piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
19/10/2023	MG/1910/01 MG/1910/02 MG/1910/03	Grey/ brown, slightly sandy, silty, clay with gravel and frequent fragments of brick and concrete, and rare fragments of wood and metal. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
19/10/2023	NAT/1910/01	Grey/brown and yellow/brown, silty, clay with rare gravel. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/1910/01	NAD	No significant contamination.	170504
MG/1910/02	NAD		170504
MG/1910/03	NAD	Elevated pH, considered to be due to the presence of alkaline construction materials (e.g., concrete) in the sample that are crushed during sample preparation. Otherwise, no significant contamination.	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/1910/01	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. One sample (MG/1910/03) did return an elevated pH, but this is considered to be due to the presence of alkaline construction materials (e.g. concrete) in the sample that are crushed during sample preparation rather than the presence of other corrosive materials. As such, the material represented by the samples would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *MG/1910/01 No significant contamination (Uncontaminated waste).*
- *MG/1910/02 No significant contamination (Uncontaminated waste).*
- *MG/1910/03 No significant contamination (Uncontaminated waste).*
- *NAT/1910/01 No significant contamination (Uncontaminated and inert waste).*

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

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BSc (Hons), PhD, MCIWM
Principal Consultant

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(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 23-63705

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU	**Samples received on:**	19/10/2023
Your job number:	TJ3994A04	**Samples instructed on/ Analysis started on:**	19/10/2023
Your order number:	TJ3994A04	**Analysis completed by:**	26/10/2023
Report Issue Number:	1	**Report issued on:**	26/10/2023
Samples Analysed:	1 soil sample		

Signed:

Joanna Wawrzeczko
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-63705
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3994A04

Lab Sample Number				2851511
Sample Reference				NAT/1910/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				19/10/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.001	NONE	1.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	ASE

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1600
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	150
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0742
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	74.2
Sulphide	mg/kg	1	MCERTS	20
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.9

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.7
Anthracene	mg/kg	0.05	MCERTS	0.15
Fluoranthene	mg/kg	0.05	MCERTS	1.4
Pyrene	mg/kg	0.05	MCERTS	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.73
Chrysene	mg/kg	0.05	MCERTS	0.77
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.42
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.86
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.51
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.14
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.59
Coronene	mg/kg	0.05	NONE	0.37

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	8.9

This certificate should not be reproduced, except in full, without the express permission of the laboratory. Iss No 2023-10-26_23-63705-1 Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU TJ3994A04
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-63705
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3994A04

Lab Sample Number				2851511
Sample Reference				NAT/1910/01
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				19/10/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.2
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.76
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	94
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	37
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100
Petroleum Hydrocarbons				
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	25

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory. Iss No 2023-10-26_23-63705-1 Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU TJ3994A04
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 23-63705
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2851511	NAT/1910/01	None Supplied	None Supplied	Brown sand with gravel and brick.

Analytical Report Number : 23-63705
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-63705
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-63709

Project / Site name:	Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE	**Samples received on:**	19/10/2023
Your job number:	TJ3994A03	**Samples instructed on/ Analysis started on:**	19/10/2023
Your order number:	TJ3994A03	**Analysis completed by:**	26/10/2023
Report Issue Number:	1	**Report issued on:**	26/10/2023
Samples Analysed:	3 soil samples		

Signed:

Joanna Szwagrzak
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-63709
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994A03

Lab Sample Number				2851516	2851517	2851518
Sample Reference				MG/1910/01	MG/1910/02	MG/1910/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				19/10/2023	19/10/2023	19/10/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	46	58
Moisture Content	%	0.01	NONE	16	11	12
Total mass of sample received	kg	0.001	NONE	1.7	1.7	1.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EWS	EWS	EWS

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.2	11.3	11.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	5100	7200	6300
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1300	680	460
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.646	0.338	0.23
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	646	338	230
Sulphide	mg/kg	1	MCERTS	100	40	40
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.5	0.5	0.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.21	0.64	0.34
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.12	0.09
Fluoranthene	mg/kg	0.05	MCERTS	0.31	1	0.65
Pyrene	mg/kg	0.05	MCERTS	0.28	0.91	0.59
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.15	0.44	0.28
Chrysene	mg/kg	0.05	MCERTS	0.13	0.46	0.32
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.19	0.46	0.37
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.07	0.29	0.16
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.13	0.38	0.29
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.06	0.21	0.14
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.07	0.27	0.19
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	1.6	5.18	3.42

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Analytical Report Number: 23-63709
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994A03

Lab Sample Number				2851516	2851517	2851518
Sample Reference				MG/1910/01	MG/1910/02	MG/1910/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				19/10/2023	19/10/2023	19/10/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	3.9	2.9
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.8	12	9.9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	89	110	100
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.83	0.73	0.7
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	1.8	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.4	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	38	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	48	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	27	87	68
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.71	1.2	0.63
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	17	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	37	35	33
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	81	70
Petroleum Hydrocarbons						
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	48	110	91

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-63709
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2851516	MG/1910/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2851517	MG/1910/02	None Supplied	None Supplied	Brown clay and sand with gravel and stones.
2851518	MG/1910/03	None Supplied	None Supplied	Brown sandy clay with gravel and stones.

Analytical Report Number : 23-63709
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-63709
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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8th November 2023

FAO: Lee Armstrong

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on two samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 26/10/2023. The samples represent made ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 26/10/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Two samples of made ground from arisings from the reduced level excavations (MG).

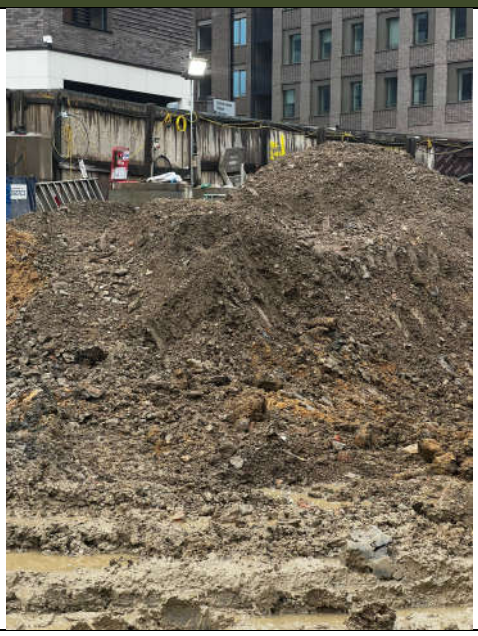
4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
26/10/2023	MG/2610/01 MG/2610/02	Brown, slightly sandy, silty, clay with gravel and frequent fragments of brick and concrete, and rare fragments of wood and metal. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/2610/01	NAD	No significant contamination.	170504
MG/2610/02	NAD		170504

NAD No asbestos observed during sample preparation or detected in the sample.

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5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. As such, the material represented by the samples would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *MG/2610/01* *No significant contamination (Uncontaminated waste).*
- *MG/2610/02* *No significant contamination (Uncontaminated waste).*

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 23-65031

Project / Site name:	Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE	**Samples received on:**	26/10/2023
Your job number:	TJ3994A05	**Samples instructed on/ Analysis started on:**	26/10/2023
Your order number:	TJ3994A05	**Analysis completed by:**	02/11/2023
Report Issue Number:	1	**Report issued on:**	02/11/2023
Samples Analysed:	2 soil samples		

Signed:

Joanna Szwagrzak
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-65031
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994A05

Lab Sample Number				2858547	2858548
Sample Reference				MG/2610/01	MG/2610/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				26/10/2023	26/10/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	12
Total mass of sample received	kg	0.001	NONE	1.1	1.2

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MWI	MWI

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.3	11.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	5900	5600
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1000	1300
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.512	0.64
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	512	640
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.3	0.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.06	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.08	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.74	0.41
Anthracene	mg/kg	0.05	MCERTS	0.16	0.12
Fluoranthene	mg/kg	0.05	MCERTS	1.3	0.95
Pyrene	mg/kg	0.05	MCERTS	1.2	0.9
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.6	0.47
Chrysene	mg/kg	0.05	MCERTS	0.59	0.47
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.59	0.54
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.34	0.23
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.58	0.45
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.24	0.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.07	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.29	0.24
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	6.86	4.98

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-65031
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994A05

Lab Sample Number				2858547	2858548
Sample Reference				MG/2610/01	MG/2610/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				26/10/2023	26/10/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.4	3.1
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.83	0.75
Boron (water soluble)	mg/kg	0.2	MCERTS	2.2	1.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	30	34
Lead (aqua regia extractable)	mg/kg	1	MCERTS	64	66
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.87	0.77
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	38	33
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	79	100
Petroleum Hydrocarbons					
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	45	28

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 23-65031
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2858547	MG/2610/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2858548	MG/2610/02	None Supplied	None Supplied	Brown clay and sand with gravel and brick.

Analytical Report Number : 23-65031
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-65031
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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8th November 2023

FAO: Lee Armstrong

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on five samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 02/11/2023. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 02/11/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Two samples of made ground from arisings from the reduced level excavations (MG).
- Three samples of natural ground from a stockpile of piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
02/11/2023	MG/0211/01 MG/0211/02	Dark grey/brown, slightly sandy, silty, clay with gravel and occasional fragments of brick and concrete, and rare fragments of wood and metal. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
02/11/2023	NAT/0211/01 NAT/0211/02 NAT/0211/03	Yellow/brown, silty, clay with rare gravel. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/0211/01	NAD	Elevated pH, considered to be due to the presence of alkaline construction materials (e.g., concrete) in the sample that are crushed during sample preparation. Otherwise, no significant contamination.	170504
MG/0211/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/0211/01	NAD	No significant contamination	170504
NAT/0211/02	NAD	No significant contamination	170504
NAT/0211/03	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. One sample (MG/0211/01) did return an elevated pH, but this is considered to be due to the presence of alkaline construction materials (e.g. concrete) in the sample that are crushed during sample preparation rather than the presence of other corrosive materials. As such, the material represented by the samples would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *MG/0211/01 No significant contamination (Uncontaminated waste).*
- *MG/0211/02 No significant contamination (Uncontaminated waste).*
- *NAT/0211/01 No significant contamination (Uncontaminated and inert waste).*
- *NAT/0211/02 No significant contamination (Uncontaminated and inert waste).*
- *NAT/0211/03 No significant contamination (Uncontaminated and inert waste).*

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

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We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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e: reception@i2analytical.com

Analytical Report Number : 23-66291

Project / Site name:	Ferry Island, Tottenham Hale Plot B, High Cross Road, London N17 9NU JRLE	**Samples received on:**	02/11/2023
Your job number:	TJ3994B01	**Samples instructed on/ Analysis started on:**	02/11/2023
Your order number:	106471.2	**Analysis completed by:**	08/11/2023
Report Issue Number:	1	**Report issued on:**	08/11/2023
Samples Analysed:	2 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

Analytical Report Number: 23-66291
Project / Site name: Ferry Island, Tottenham Hale Plot B, High Cross Road, London N17 9NU JRLE
Your Order No: 106471.2

Lab Sample Number				2865401	2865402
Sample Reference				MG/0211/01	MG/0211/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				02/11/2023	02/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	18
Total mass of sample received	kg	0.001	NONE	1.2	1.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.6	11.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	7100	6000
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	390	540
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.196	0.271
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	196	271
Sulphide	mg/kg	1	MCERTS	90	83
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	0.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.06
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.09	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.06	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.64	0.47
Anthracene	mg/kg	0.05	MCERTS	0.11	0.08
Fluoranthene	mg/kg	0.05	MCERTS	0.8	0.76
Pyrene	mg/kg	0.05	MCERTS	0.7	0.63
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.38	0.39
Chrysene	mg/kg	0.05	MCERTS	0.36	0.31
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.44	0.47
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.24	0.16
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.4	0.39
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.17	0.18
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.19	0.21
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	4.58	4.11

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Analytical Report Number: 23-66291
Project / Site name: Ferry Island, Tottenham Hale Plot B, High Cross Road, London N17 9NU JRLE
Your Order No: 106471.2

Lab Sample Number				2865401	2865402
Sample Reference				MG/0211/01	MG/0211/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				02/11/2023	02/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.4	2.9
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	16
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.71	0.75
Boron (water soluble)	mg/kg	0.2	MCERTS	2.5	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	34	36
Lead (aqua regia extractable)	mg/kg	1	MCERTS	68	94
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	0.4
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1	1.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	35
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	76	96
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	120	150

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-66291
Project / Site name: Ferry Island, Tottenham Hale Plot B, High Cross Road, London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2865401	MG/0211/01	None Supplied	None Supplied	Brown sandy clay with gravel.
2865402	MG/0211/02	None Supplied	None Supplied	Brown sandy clay with gravel.

Analytical Report Number : 23-66291
Project / Site name: Ferry Island, Tottenham Hale Plot B, High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-66291
Project / Site name: Ferry Island, Tottenham Hale Plot B, High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-66294

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL	**Samples received on:**	02/11/2023
Your job number:	TJ3994B02	**Samples instructed on/ Analysis started on:**	02/11/2023
Your order number:	TJ3994B02	**Analysis completed by:**	08/11/2023
Report Issue Number:	1	**Report issued on:**	08/11/2023
Samples Analysed:	3 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-66294
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL
Your Order No: TJ3994B02

Lab Sample Number				2865412	2865413	2865414
Sample Reference				NAT/0211/01	NAT/0211/02	NAT/0211/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				02/11/2023	02/11/2023	02/11/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	15	22
Total mass of sample received	kg	0.001	NONE	1.4	1.2	1.2
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	IZJ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.6	10.7	9.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1400	6000	2600
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1100	3700	1400
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.542	1.87	0.708
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	542	1870	708
Sulphide	mg/kg	1	MCERTS	170	200	140
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	0.4	0.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.05	0.13	0.24
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.09
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.06
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.07	0.13
Phenanthrene	mg/kg	0.05	MCERTS	0.08	0.27	0.5
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.05	0.1
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.18	0.27
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.17	0.28
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.09	0.14
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.08	0.13
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.09
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.14
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	1.04	2.27

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Analytical Report Number: 23-66294
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL
Your Order No: TJ3994B02

Lab Sample Number				2865412	2865413	2865414
Sample Reference				NAT/0211/01	NAT/0211/02	NAT/0211/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				02/11/2023	02/11/2023	02/11/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.9	7	9.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	60	69	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.95	0.78	1
Boron (water soluble)	mg/kg	0.2	MCERTS	1.5	1.3	1.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	21	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	22	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	13	16
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.69	0.46	0.44
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	16	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	39	34	45
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	47	39	53
Petroleum Hydrocarbons						
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	10	29

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-66294
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2865412	NAT/0211/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2865413	NAT/0211/02	None Supplied	None Supplied	Brown clay and sand with gravel.
2865414	NAT/0211/03	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 23-66294
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-66294
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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4 Elstree Way
Borehamwood
WD6 1RN

30th November 2023

FAO: Lee Armstrong

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on five samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 09/11/2023. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 09/11/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Two samples of made ground from arisings from the reduced level excavations (MG).
- Three samples of natural ground from a stockpile of piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
09/11/2023	MG/0911/01 MG/0911/02	Grey/brown, slightly sandy, silty, clay with gravel and occasional fragments of brick and concrete, and rare fragments of wood and metal. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
09/11/2023	NAT/0911/01 NAT/0911/02 NAT/0911/03	Yellow/brown and grey/brown, silty, gravely clay and sand. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/0911/01	NAD	No significant contamination	170504
MG/0911/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/0911/01	NAD	No significant contamination	170504
NAT/0911/02	NAD	No significant contamination	170504
NAT/0911/03	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. As such, the material represented by the samples would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *MG/0911/01 No significant contamination (Uncontaminated waste).*
- *MG/0911/02 No significant contamination (Uncontaminated waste).*

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- *NAT/0911/01 No significant contamination (Uncontaminated and inert waste).*
- *NAT/0911/02 No significant contamination (Uncontaminated and inert waste).*
- *NAT/0911/03 No significant contamination (Uncontaminated and inert waste).*

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 23-67904

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE	**Samples received on:**	09/11/2023
Your job number:	TJ3994B03	**Samples instructed on/ Analysis started on:**	09/11/2023
Your order number:	TJ3994B03	**Analysis completed by:**	17/11/2023
Report Issue Number:	1	**Report issued on:**	17/11/2023
Samples Analysed:	2 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-67904
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE
Your Order No: TJ3994B03

Lab Sample Number				2873389	2873390
Sample Reference				MG/0911/01	MG/0911/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				09/11/2023	09/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	12
Total mass of sample received	kg	0.001	NONE	1	1.1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MLO	MLO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.6	10.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1900	1900
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	310	220
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.154	0.111
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	154	111
Sulphide	mg/kg	1	MCERTS	4.6	4
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8	1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.08	0.1
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.52	0.53
Anthracene	mg/kg	0.05	MCERTS	0.14	0.14
Fluoranthene	mg/kg	0.05	MCERTS	1.2	1.4
Pyrene	mg/kg	0.05	MCERTS	1.1	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.71	0.81
Chrysene	mg/kg	0.05	MCERTS	0.67	0.74
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.88	1.2
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.46	0.43
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.69	0.84
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.44	0.52
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.11	0.12
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.55	0.62
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	7.58	8.63

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-67904
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE
Your Order No: TJ3994B03

Lab Sample Number				2873389	2873390
Sample Reference				MG/0911/01	MG/0911/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				09/11/2023	09/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	4.2	3.8
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.73	0.61
Boron (water soluble)	mg/kg	0.2	MCERTS	2.6	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	36	37
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.83	0.67
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	39	34
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	130
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	29	33

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-67904
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2873389	MG/0911/01	None Supplied	None Supplied	Brown sand with gravel.
2873390	MG/0911/02	None Supplied	None Supplied	Brown sand with gravel.

Analytical Report Number : 23-67904
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-67904
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-67906

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE	**Samples received on:**	09/11/2023
Your job number:	TJ3994B04	**Samples instructed on/ Analysis started on:**	09/11/2023
Your order number:	TJ3994B04	**Analysis completed by:**	17/11/2023
Report Issue Number:	1	**Report issued on:**	17/11/2023
Samples Analysed:	3 soil samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-67906
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3994B04

Lab Sample Number				2873392	2873393	2873394
Sample Reference				NAT/0911/01	NAT/0911/02	NAT/0911/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				09/11/2023	09/11/2023	09/11/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	25	38
Moisture Content	%	0.01	NONE	16	5.6	5.9
Total mass of sample received	kg	0.001	NONE	1.1	1.2	1.2
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EC	EC	EC

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.2	9.1	9.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1200	230	320
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	860	120	190
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.431	0.0614	0.0947
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	431	61.4	94.7
Sulphide	mg/kg	1	MCERTS	3.6	4.3	4.3
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.5	0.2	0.1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.07	< 0.05	0.05
Pyrene	mg/kg	0.05	MCERTS	0.06	< 0.05	0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85	< 0.85

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Analytical Report Number: 23-67906
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3994B04

Lab Sample Number				2873392	2873393	2873394
Sample Reference				NAT/0911/01	NAT/0911/02	NAT/0911/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				09/11/2023	09/11/2023	09/11/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.5	< 1.0	2
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	15	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	68	49	21
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.83	0.39	0.3
Boron (water soluble)	mg/kg	0.2	MCERTS	1.4	0.3	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	13	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24	5.9	8.5
Lead (aqua regia extractable)	mg/kg	1	MCERTS	18	10	11
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.73	0.59	0.51
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	29	17	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	52	26	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	57	24	25
Petroleum Hydrocarbons						
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	24

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-67906

Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2873392	NAT/0911/01	None Supplied	None Supplied	Brown sand with gravel.
2873393	NAT/0911/02	None Supplied	None Supplied	Brown sand with gravel and stones.
2873394	NAT/0911/03	None Supplied	None Supplied	Brown sand with gravel and stones.

Analytical Report Number : 23-67906
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-67906
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Borehamwood
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30th November 2023

FAO: Lee Armstrong

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 16/11/2023. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 16/11/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Two samples of made ground from arisings from the reduced level excavations (MG).
- Two samples of natural ground from a stockpile of piling arisings (NAT).

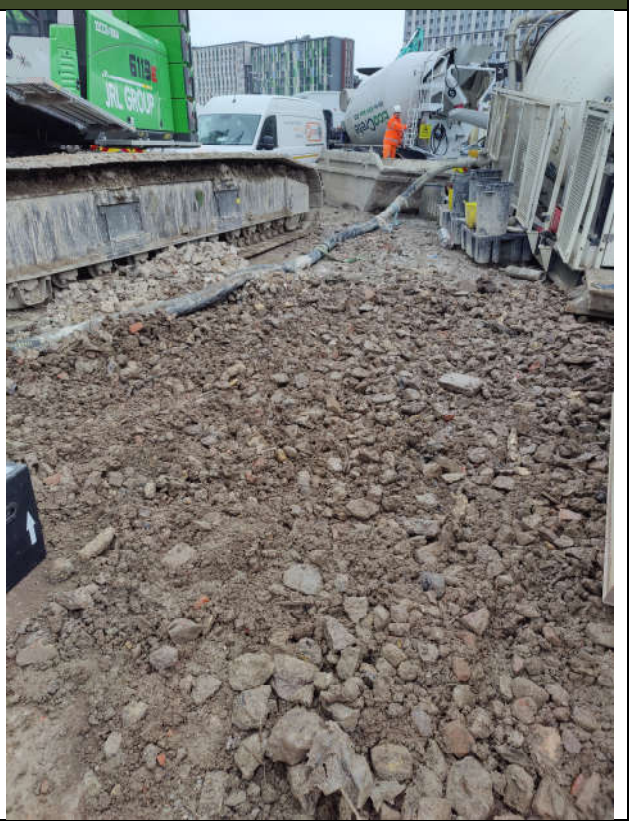
4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

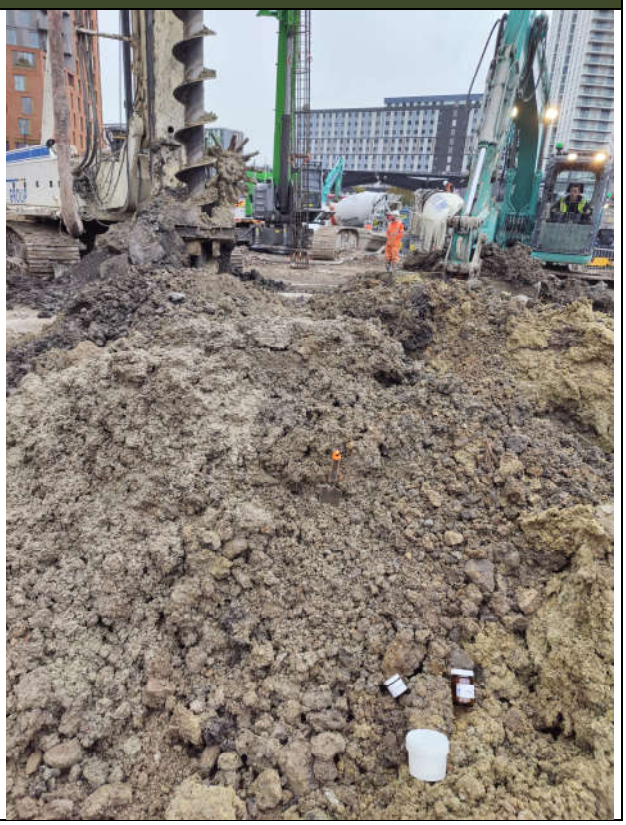
4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
16/11/2023	MG/1611/01 MG/1611/02	Grey/brown, sandy, gravel of crushed concrete with frequent fragments of brick, and rare fragments of wood and metal. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
16/11/2023	NAT/1611/01 NAT/1611/02	Light brown, slightly gravelly, silty sand. Brown, slightly gravelly clayey sand. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/1611/01	NAD	No significant contamination	170504
MG/1611/02	NAD	No significant contamination (elevated pH*)	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/1611/01	NAD	No significant contamination	170504
NAT/1611/02	NAD	No significant contamination (elevated pH*)	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. One sample of made ground (MG/1611/02) and one sample of natural ground (NAT/1611/02) returned an elevated pH, but in both instances this is considered to be due to the presence of alkaline construction materials (e.g. concrete) in the sample that are crushed during sample preparation together with the low buffering capacity of sand and gravel rather than the presence of other corrosive materials

As such, the material represented by the samples would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

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In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *MG/1611/01* *No significant contamination (Uncontaminated waste).*
- *MG/1611/02* *No significant contamination (Uncontaminated waste).*
- *NAT/1611/01* *No significant contamination (Uncontaminated and inert waste).*
- *NAT/1611/02* *No significant contamination (Uncontaminated and inert waste).*

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 23-69565

Project / Site name:	Ferry Island, Tottenham Hale (Okot B), High Cross Road, London N17 9 NU	**Samples received on:**	17/11/2023
Your job number:	TJ3994B06	**Samples instructed on/ Analysis started on:**	17/11/2023
Your order number:	TJ3994B06	**Analysis completed by:**	24/11/2023
Report Issue Number:	1	**Report issued on:**	24/11/2023
Samples Analysed:	2 soil samples		

Signed: A. Czerwińska

Agnieszka Czerwińska
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-69565
Project / Site name: Ferry Island, Tottenham Hale (Okot B), High Cross Road, London N17 9 NU
Your Order No: TJ3994B06

Lab Sample Number				2882350	2882351
Sample Reference				NAT/1611/01	NAT/1611/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				16/11/2023	16/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	12
Total mass of sample received	kg	0.001	NONE	1.8	1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MLO	MLO
General Inorganics					
pH - Automated	pH Units	N/A	MCERTS	11.4	11.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1400	1800
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	380	790
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.191	0.396
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	191	396
Sulphide	mg/kg	1	MCERTS	110	170
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	< 0.1	< 0.1
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.23
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.19
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.08
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.09
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.08
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05
Total PAH					
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	1.07

Analytical Report Number: 23-69565
Project / Site name: Ferry Island, Tottenham Hale (Okot B), High Cross Road, London N17 9 NU
Your Order No: TJ3994B06

Lab Sample Number				2882350	2882351
Sample Reference				NAT/1611/01	NAT/1611/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				16/11/2023	16/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3.6	6.9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	45	66
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.58	0.87
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3	1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	< 0.25	0.47
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	6.8	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	36
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	35	46
Petroleum Hydrocarbons					
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-69565
Project / Site name: Ferry Island, Tottenham Hale (Okot B), High Cross Road, London N17 9 NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2882350	NAT/1611/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2882351	NAT/1611/02	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 23-69565
Project / Site name: Ferry Island, Tottenham Hale (Okot B), High Cross Road, London N17 9 NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-69565
Project / Site name: Ferry Island, Tottenham Hale (Okot B), High Cross Road, London N17 9 NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-69566

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE	**Samples received on:**	17/11/2023
Your job number:	TJ3994B05	**Samples instructed on/ Analysis started on:**	17/11/2023
Your order number:	TJ3994B05	**Analysis completed by:**	24/11/2023
Report Issue Number:	1	**Report issued on:**	24/11/2023
Samples Analysed:	2 soil samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-69566
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE
Your Order No: TJ3994B05

Lab Sample Number				2882352	2882353
Sample Reference				MG/1611/01	MG/1611/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				16/11/2023	16/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	10
Total mass of sample received	kg	0.001	NONE	1	1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MLO	MLO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.7	11.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	2400	4600
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1200	140
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.613	0.0697
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	613	69.7
Sulphide	mg/kg	1	MCERTS	62	53
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.4	0.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.1	0.11
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.06
Phenanthrene	mg/kg	0.05	MCERTS	0.45	0.35
Anthracene	mg/kg	0.05	MCERTS	0.1	0.09
Fluoranthene	mg/kg	0.05	MCERTS	0.79	0.62
Pyrene	mg/kg	0.05	MCERTS	0.72	0.62
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.39	0.34
Chrysene	mg/kg	0.05	MCERTS	0.38	0.32
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.41	0.57
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.25	0.57
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.37	0.31
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.19	0.15
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.23	0.2
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	4.38	4.41

Analytical Report Number: 23-69566
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE
Your Order No: TJ3994B05

Lab Sample Number				2882352	2882353
Sample Reference				MG/1611/01	MG/1611/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				16/11/2023	16/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.8	2.7
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	17
Barium (aqua regia extractable)	mg/kg	1	MCERTS	400	250
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.59	0.67
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	1.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	33
Lead (aqua regia extractable)	mg/kg	1	MCERTS	65	51
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.81	1.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	33
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	150
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-69566
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2882352	MG/1611/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2882353	MG/1611/02	None Supplied	None Supplied	Brown clay and sand with gravel and vegetation.

Analytical Report Number : 23-69566
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-69566
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU(JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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30th November 2023

FAO: Lee Armstrong

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 23/11/2023. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 23/11/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Two samples of made ground from arisings from the reduced level excavations (MG).
- Two samples of natural ground from a stockpile of piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
23/11/2023	MG/2311/01 MG/2311/02	Light brown, sandy, silty clay soil with frequent fragments of brick, vegetation and stone. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
23/11/2023	NAT/2311/01 NAT/2311/02	Dark clay, firm to stiff, silty clay. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/2311/01	NAD	No significant contamination	170504
MG/2311/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/2311/01	NAD	No significant contamination	170504
NAT/2311/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. As such, the material represented by the samples would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

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In addition, material represented by the samples can be described for waste disposal purposes as follows:

- *MG/2311/01* *No significant contamination (Uncontaminated waste).*
- *MG/2311/02* *No significant contamination (Uncontaminated waste).*
- *NAT/2311/01* *No significant contamination (Uncontaminated and inert waste).*
- *NAT/2311/02* *No significant contamination (Uncontaminated and inert waste).*

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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e: reception@i2analytical.com

Analytical Report Number : 23-70772

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE	**Samples received on:**	23/11/2023
Your job number:		**Samples instructed on/ Analysis started on:**	23/11/2023
Your order number:	TJ3994B07	**Analysis completed by:**	30/11/2023
Report Issue Number:	1	**Report issued on:**	30/11/2023
Samples Analysed:	2 soil samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-70772
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3994B07

Lab Sample Number				2888492	2888493
Sample Reference				MG/2311/01	MG/2311/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				23/11/2023	23/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	9.3	11
Total mass of sample received	kg	0.001	NONE	1.5	1.4

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.1	10.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	3200	2000
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	910	480
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.454	0.238
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	454	238
Sulphide	mg/kg	1	MCERTS	28	17
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8	0.8

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.18	0.19
Acenaphthylene	mg/kg	0.05	MCERTS	0.05	0.07
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.34	0.34
Anthracene	mg/kg	0.05	MCERTS	0.09	0.1
Fluoranthene	mg/kg	0.05	MCERTS	0.83	0.88
Pyrene	mg/kg	0.05	MCERTS	0.8	0.83
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.57	0.58
Chrysene	mg/kg	0.05	MCERTS	0.56	0.58
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.2	1.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.27	0.32
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.91	0.77
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.39	0.35
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.45	0.42
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	6.66	6.54

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-70772
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3994B07

Lab Sample Number				2888492	2888493
Sample Reference				MG/2311/01	MG/2311/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				23/11/2023	23/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.9	3.3
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.7	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	99	96
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.58	0.69
Boron (water soluble)	mg/kg	0.2	MCERTS	1.9	1.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	66	64
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.83	1
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	30
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	82	75
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	120	160

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 23-70772
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2888492	MG/2311/01	None Supplied	None Supplied	Brown sand with gravel and vegetation.
2888493	MG/2311/02	None Supplied	None Supplied	Brown sand with gravel and vegetation.

Analytical Report Number : 23-70772
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-70772
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-70789

Project / Site name:	Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE	**Samples received on:**	23/11/2023
Your job number:	TJ3994B08	**Samples instructed on/ Analysis started on:**	23/11/2023
Your order number:	TJ3994B08	**Analysis completed by:**	30/11/2023
Report Issue Number:	1	**Report issued on:**	30/11/2023
Samples Analysed:	2 soil samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-70789
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994B08

Lab Sample Number				2888602	2888603
Sample Reference				NAT/2311/01	NAT/2311/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				23/11/2023	23/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	20
Total mass of sample received	kg	0.001	NONE	0.6	1.4

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9	8.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	590	480
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	500	410
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.249	0.207
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	249	207
Sulphide	mg/kg	1	MCERTS	110	120
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	0.9

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.44	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85

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Analytical Report Number: 23-70789
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994B08

Lab Sample Number				2888602	2888603
Sample Reference				NAT/2311/01	NAT/2311/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				23/11/2023	23/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.3	3.4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	59	67
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	1.4
Boron (water soluble)	mg/kg	0.2	MCERTS	2.7	2.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	39	44
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29	33
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.34	0.31
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	39
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	64	72
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	74	79
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-70789
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2888602	NAT/2311/01	None Supplied	None Supplied	Brown clay with gravel.
2888603	NAT/2311/02	None Supplied	None Supplied	Brown clay.

Analytical Report Number : 23-70789
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-70789
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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14th December 2023

FAO: Rob Welling

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 30/11/2023. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 30/11/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Two samples of made ground from arisings from the reduced level excavations (MG).
- Two samples of natural ground from a stockpile of piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

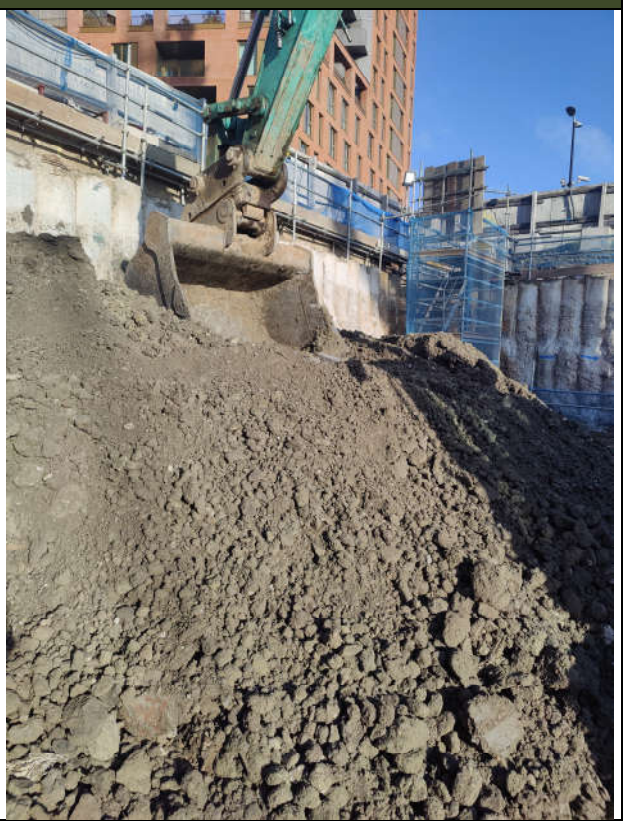
4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
30/11/2023	MG/3011/01 MG/3011/02	Light brown, sandy, silty clay soil with frequent fragments of brick, vegetation and stone. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
30/11/2023	NAT/3011/01 NAT/3011/02	Dark clay, firm to stiff, silty clay. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/3011/01	NAD	No significant contamination	170504
MG/3011/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/3011/01	NAD	No significant contamination	170504
NAT/3011/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants.

As such, the material represented by the samples (made ground and natural) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

The concentrations returned by the samples of made ground were not hazardous and as such, it is likely that the material represented by these samples would be suitable for acceptance and treatment at a typical soil and aggregates recycling facility (e.g., SR2010 No12).

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The naturally occurring soils (London Clay) was free from visual and/or olfactory evidence or any suspicion of contamination, as confirmed by returning low concentrations of all potential contaminants and would be classified as soil and stones not containing hazardous substances (LoW Code 170504), suitable for disposal to an inert permitted landfill/facility without the need for testing. Furthermore, it is likely that the uncontaminated, naturally occurring arisings would be considered suitable for direct transfer to and reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 23-72595

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE	**Samples received on:**	01/12/2023
Your job number:	TJ3994B10	**Samples instructed on/ Analysis started on:**	01/12/2023
Your order number:	TJ3994B10	**Analysis completed by:**	07/12/2023
Report Issue Number:	1	**Report issued on:**	07/12/2023
Samples Analysed:	2 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-72595
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3994B10

Lab Sample Number				2897881	2897882
Sample Reference				NAT/3011/01	NAT/3011/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				30/11/2023	30/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	14	14
Total mass of sample received	kg	0.001	NONE	1.3	1.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.2	9.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	940	700
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1000	760
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.506	0.381
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	506	381
Sulphide	mg/kg	1	MCERTS	140	150
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.5	0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.11	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.14	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.12	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.08	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.09	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85

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Analytical Report Number: 23-72595
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3994B10

Lab Sample Number				2897881	2897882
Sample Reference				NAT/3011/01	NAT/3011/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				30/11/2023	30/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	2.1
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	42	49
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	0.95
Boron (water soluble)	mg/kg	0.2	MCERTS	2.9	3.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	12
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.52	0.54
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	29	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.6	1.4
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	40	47
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	54	57
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-72595
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2897881	NAT/3011/01	None Supplied	None Supplied	Brown clay and sand.
2897882	NAT/3011/02	None Supplied	None Supplied	Brown clay and sand.

Analytical Report Number : 23-72595
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-72595
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-72600

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE	**Samples received on:**	01/12/2023
Your job number:	TJ3994B09	**Samples instructed on/ Analysis started on:**	01/12/2023
Your order number:	TJ3994B09	**Analysis completed by:**	07/12/2023
Report Issue Number:	1	**Report issued on:**	07/12/2023
Samples Analysed:	2 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-72600
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3994B09

Lab Sample Number				2897946	2897947
Sample Reference				MG/3011/01	MG/3011/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				30/11/2023	30/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	12
Total mass of sample received	kg	0.001	NONE	1.4	1.4

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.3	9.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	3400	1800
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	220	780
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.112	0.388
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	112	388
Sulphide	mg/kg	1	MCERTS	23	17
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	0.7

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.06	0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.34	0.38
Anthracene	mg/kg	0.05	MCERTS	0.06	0.1
Fluoranthene	mg/kg	0.05	MCERTS	0.67	1.1
Pyrene	mg/kg	0.05	MCERTS	0.64	1.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.43	0.86
Chrysene	mg/kg	0.05	MCERTS	0.53	0.79
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.67	1.2
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.32	0.52
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.57	1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.32	0.55
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.34	0.64
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	4.95	8.37

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Analytical Report Number: 23-72600
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE
Your Order No: TJ3994B09

Lab Sample Number				2897946	2897947
Sample Reference				MG/3011/01	MG/3011/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				30/11/2023	30/11/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	4.6	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.8	10
Barium (aqua regia extractable)	mg/kg	1	MCERTS	240	93
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.67	0.64
Boron (water soluble)	mg/kg	0.2	MCERTS	1.5	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	76	54
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1.2	0.58
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	32
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	93	79
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	83	390

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-72600
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2897946	MG/3011/01	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation.
2897947	MG/3011/02	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 23-72600
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-72600
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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14th December 2023

FAO: Rob Welling

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 07/12/2023. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 07/12/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Two samples of made ground from arisings from the reduced level excavations (MG).
- Two samples of natural ground from a stockpile of piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
07/12/2023	MG/0712/01 MG/0712/02	Light brown, sandy, silty clay soil with frequent fragments of brick and concrete. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
07/12/2023	NAT/0712/01 NAT/0712/02	Dark clay, firm to stiff, silty clay. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/0712/01	NAD	No significant contamination	170504
MG/0712/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/0712/01	NAD	No significant contamination	170504
NAT/0712/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants.

As such, the material represented by the samples (made ground and natural) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

The concentrations returned by the samples of made ground were not hazardous and as such, it is likely that the material represented by these samples would be suitable for acceptance and treatment at a typical soil and aggregates recycling facility (e.g., SR2010 No12).

The naturally occurring soils (London Clay) was free from visual and/or olfactory evidence or any suspicion of contamination, as confirmed by returning low concentrations of all potential contaminants and would be classified as soil and stones not containing hazardous substances (LoW Code 170504), suitable for disposal to an inert permitted landfill/facility without the need for testing. Furthermore, it is likely that the uncontaminated, naturally occurring arisings would be considered suitable for direct transfer to and reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist

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be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 23-73506

Project / Site name:	Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE	**Samples received on:**	07/12/2023
Your job number:	TJ3994C01	**Samples instructed on/ Analysis started on:**	07/12/2023
Your order number:	TJ3994C01	**Analysis completed by:**	14/12/2023
Report Issue Number:	1	**Report issued on:**	14/12/2023
Samples Analysed:	2 soil samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-73506
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994C01

Lab Sample Number				2903140	2903141
Sample Reference				MG/0712/01	MG/0712/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				07/12/2023	07/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	11
Total mass of sample received	kg	0.001	NONE	1.9	1.9

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MLO	MLO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.3	11.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	11000	10000
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.74	0.93
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	1500	1900
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	744	926
Sulphide	mg/kg	1	MCERTS	84	91
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.31	0.26
Acenaphthylene	mg/kg	0.05	MCERTS	0.07	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.2	0.11
Fluorene	mg/kg	0.05	MCERTS	0.2	0.11
Phenanthrene	mg/kg	0.05	MCERTS	2.6	0.78
Anthracene	mg/kg	0.05	MCERTS	0.65	0.17
Fluoranthene	mg/kg	0.05	MCERTS	4.1	1.3
Pyrene	mg/kg	0.05	MCERTS	3.4	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.5	0.58
Chrysene	mg/kg	0.05	MCERTS	1.3	0.54
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.6	0.63
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.54	0.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.3	0.56
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.6	0.25
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.16	0.07
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.7	0.32
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	19.2	7.16

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Analytical Report Number: 23-73506
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994C01

Lab Sample Number				2903140	2903141
Sample Reference				MG/0712/01	MG/0712/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				07/12/2023	07/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.2	2.4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.8	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.7	0.71
Boron (water soluble)	mg/kg	0.2	MCERTS	1	2.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	34	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	55	43
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1	0.95
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	86	89
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	160	220

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-73506

Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2903140	MG/0712/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2903141	MG/0712/02	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 23-73506
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-73506
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-73508

Project / Site name:	Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE	**Samples received on:**	07/12/2023
Your job number:	TJ3994C02	**Samples instructed on/ Analysis started on:**	07/12/2023
Your order number:	TJ3994C02	**Analysis completed by:**	13/12/2023
Report Issue Number:	1	**Report issued on:**	14/12/2023
Samples Analysed:	2 soil samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

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Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-73508
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994C02

Lab Sample Number				2903149	2903150
Sample Reference				NAT/0712/01	NAT/0712/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				07/12/2023	07/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	15
Total mass of sample received	kg	0.001	NONE	2	1.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.2	11.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1300	2000
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.43	0.43
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	860	850
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	431	426
Sulphide	mg/kg	1	MCERTS	82	190
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.3	0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.19	0.32
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.06	0.15
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.09
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.09
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85

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Analytical Report Number: 23-73508
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994C02

Lab Sample Number				2903149	2903150
Sample Reference				NAT/0712/01	NAT/0712/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				07/12/2023	07/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.8	9.1
Barium (aqua regia extractable)	mg/kg	1	MCERTS	40	52
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.76	0.92
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	11
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.33	0.48
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	38
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	41	56
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-73508
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2903149	NAT/0712/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2903150	NAT/0712/02	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 23-73508
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-73508
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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J. Reddington Limited
4 Elstree Way
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4th January 2024

FAO: Rob Welling

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 14/12/2023. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East, and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared, and a new road junction constructed, in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut, and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground, of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations, but it was detected at low concentrations in three samples of made ground tested. Made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel, and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 14/12/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Two samples of made ground from arisings from the reduced level excavations (MG).
- Two samples of natural ground from a stockpile of piling arisings (NAT).

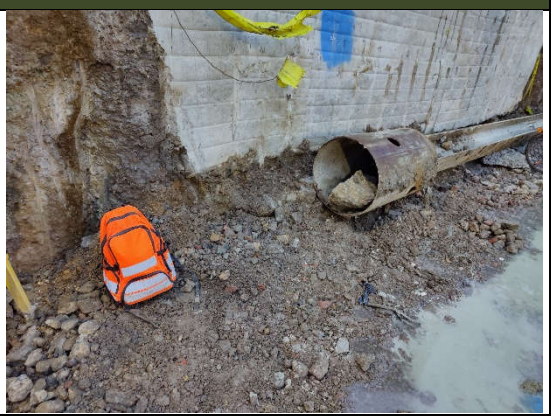
4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

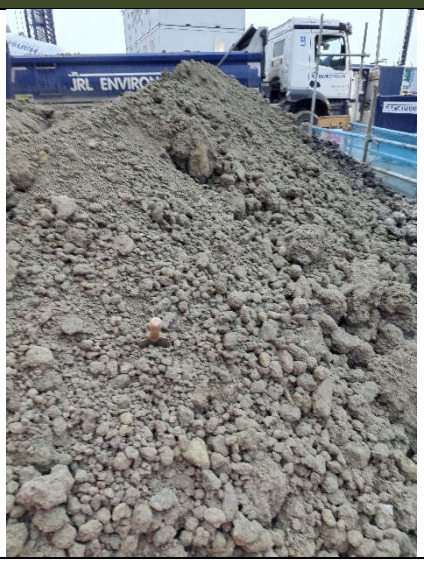
- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
14/12/2023	MG/1412/01 MG/1412/02	Grey/brown, sandy, silty gravel with frequent fragments of brick and concrete. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
14/12/2023	NAT/1412/01 NAT/1412/02	Dark clay, firm to stiff, slightly sandy, slightly gravelly clay. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/1412/01	NAD	No significant contamination*	170504
MG/1412/02	NAD	No significant contamination*	170504

NAD No asbestos observed during sample preparation or detected in the sample.

* Both samples of made ground returned an elevated pH value. During sample preparation, soil samples are dried and then ground. If they contain fragments of concrete, the process increases the surface area of the concrete, thus temporarily exposing a significantly increased amount of calcium hydroxide to the analytical substrates (e.g. water), which frequently results in a temporarily increased pH value (≥11.5) during standard laboratory analysis of samples of aggregates or made ground containing fragments of concrete. In this case, the elevated pH is therefore considered to be due to the presence of alkaline construction materials (e.g. frequent fragments of concrete) in the sample that are crushed during sample preparation rather than the presence of other corrosive materials.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/1412/01	NAD	No significant contamination	170504
NAT/1412/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants.

As such, the material represented by the samples (made ground and natural) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

The concentrations returned by the samples of made ground were not hazardous and as such, it is likely that the material represented by these samples would be suitable for acceptance and treatment at a typical soil and aggregates recycling facility (e.g., SR2010 No12).

The naturally occurring soils (London Clay) was free from visual and/or olfactory evidence or any suspicion of contamination, as confirmed by returning low concentrations of all potential contaminants and would be classified as soil and stones not containing hazardous substances (LoW Code 170504), suitable for disposal to an inert permitted landfill/facility without the need for testing. Furthermore, it is likely that the uncontaminated, naturally occurring arisings would be considered suitable for direct transfer to and reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on

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any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
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Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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e: reception@i2analytical.com

Analytical Report Number : 23-75076

Project / Site name:	Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE	**Samples received on:**	14/12/2023
Your job number:	TJ3994C03	**Samples instructed on/ Analysis started on:**	14/12/2023
Your order number:	TJ3994C03	**Analysis completed by:**	27/12/2023
Report Issue Number:	1	**Report issued on:**	27/12/2023
Samples Analysed:	2 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-75076
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994C03

Lab Sample Number				2911910	2911911
Sample Reference				MG/1412/01	MG/1412/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				14/12/2023	14/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	50	42
Moisture Content	%	0.01	NONE	12	14
Total mass of sample received	kg	0.001	NONE	0.9	1

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EWS	EWS

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.6	11.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	6100	9000
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	460	950
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.23	0.475
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	230	475
Sulphide	mg/kg	1	MCERTS	77	110
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.5	0.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.06	0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	0.07
Fluorene	mg/kg	0.05	MCERTS	0.08	0.06
Phenanthrene	mg/kg	0.05	MCERTS	0.83	0.73
Anthracene	mg/kg	0.05	MCERTS	0.37	0.19
Fluoranthene	mg/kg	0.05	MCERTS	1.5	1.2
Pyrene	mg/kg	0.05	MCERTS	1.4	1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.69	0.47
Chrysene	mg/kg	0.05	MCERTS	0.64	0.45
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.72	0.55
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.32	0.22
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.63	0.46
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.31	0.24
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.08	0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.36	0.3
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	8.05	6

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Analytical Report Number: 23-75076
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE
Your Order No: TJ3994C03

Lab Sample Number				2911910	2911911
Sample Reference				MG/1412/01	MG/1412/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				14/12/2023	14/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.2	2.6
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.65	0.7
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	40	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	54	54
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.84	1
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30	30
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	80
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	120	110

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-75076
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2911910	MG/1412/01	None Supplied	None Supplied	Brown loam with stones.
2911911	MG/1412/02	None Supplied	None Supplied	Brown loam with stones.

Analytical Report Number : 23-75076
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-75076
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU JRLE

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-75077

Project / Site name:	Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU	**Samples received on:**	14/12/2023
Your job number:	TJ3994C04	**Samples instructed on/ Analysis started on:**	14/12/2023
Your order number:	TJ3994C04	**Analysis completed by:**	27/12/2023
Report Issue Number:	1	**Report issued on:**	27/12/2023
Samples Analysed:	2 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-75077
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU
Your Order No: TJ3994C04

Lab Sample Number				2911912	2911913
Sample Reference				NAT/1412/01	NAT/1412/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				14/12/2023	14/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	19
Total mass of sample received	kg	0.001	NONE	1	0.9
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11	11.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	2500	2800
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1400	1600
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.69	0.784
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	690	784
Sulphide	mg/kg	1	MCERTS	190	190
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	0.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.07	0.08
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.11	0.13
Pyrene	mg/kg	0.05	MCERTS	0.1	0.13
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.05	0.05
Chrysene	mg/kg	0.05	MCERTS	0.05	0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.06
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85

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Analytical Report Number: 23-75077
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU
Your Order No: TJ3994C04

Lab Sample Number				2911912	2911913
Sample Reference				NAT/1412/01	NAT/1412/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				14/12/2023	14/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	2
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9	8.9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	54	63
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.86	0.98
Boron (water soluble)	mg/kg	0.2	MCERTS	1.7	1.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	18	17
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.57	0.42
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	39	43
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	49	56
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	16	17

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-75077
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2911912	NAT/1412/01	None Supplied	None Supplied	Brown sandy clay with gravel.
2911913	NAT/1412/02	None Supplied	None Supplied	Brown sandy clay with gravel.

Analytical Report Number : 23-75077
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-75077
Project / Site name: Ferry Island Tottenham Hale Plot B High Cross Road London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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4th January 2024

FAO: Rob Welling

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 19/12/2023. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East, and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared, and a new road junction constructed, in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut, and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground, of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations, but it was detected at low concentrations in three samples of made ground tested. Made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel, and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 19/12/2023 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Two samples of made ground from arisings from the reduced level excavations (MG).
- Two samples of natural ground from a stockpile of piling arisings (NAT).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

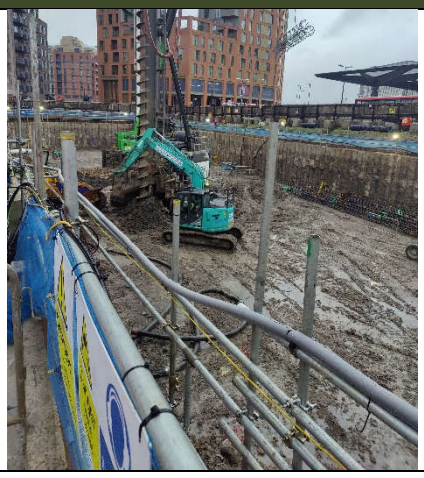
- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Made Ground Arisings (MG)

Sampling Date	Reference	Physical Description	Photograph
19/12/2023	MG/1912/01 MG/1912/02	Grey/brown, sandy, silty gravel with frequent fragments of brick and concrete. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the made ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

Natural Ground Arisings (NAT)

Sampling Date	Reference	Physical Description	Photograph
19/12/2023	NAT/1912/01 NAT/1912/02	Dark clay, firm to stiff, slightly sandy, slightly gravelly clay with occasional fragments of brick and concrete. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Made Ground Arisings (MG)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
MG/1912/01	NAD	No significant contamination	170504
MG/1912/02	NAD	No significant contamination*	170504

NAD No asbestos observed during sample preparation or detected in the sample.

* One sample of made ground (MG/1912/02) returned an elevated pH value. During sample preparation, soil samples are dried and then ground. If they contain fragments of concrete, the process increases the surface area of the concrete, thus temporarily exposing a significantly increased amount of calcium hydroxide to the analytical substrates (e.g. water), which frequently results in a temporarily increased pH value (≥11.5) during standard laboratory analysis of samples of aggregates or made ground containing fragments of concrete. In this case, the elevated pH is therefore considered to be due to the presence of alkaline construction materials (e.g. frequent fragments of concrete) in the sample that are crushed during sample preparation rather than the presence of other corrosive materials.

Natural Ground Arisings (NAT)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
NAT/1912/01	NAD	No significant contamination	170504
NAT/1912/02	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

* One sample of made ground (MG/1912/02) and one sample of natural ground (NAT/1912/02) returned an elevated pH value. During sample preparation, soil samples are dried and then ground. If they contain fragments of concrete, the process increases the surface area of the concrete, thus temporarily exposing a significantly increased amount of calcium hydroxide to the analytical substrates (e.g. water), which frequently results in a temporarily increased pH value (≥11.5) during standard laboratory analysis of samples of aggregates or made ground containing fragments of concrete. In this case, the elevated pH is therefore considered to be due to the presence of alkaline construction materials (e.g. frequent fragments of concrete) in the sample that are crushed during sample preparation rather than the presence of other corrosive materials.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. As such, the material represented by the samples (made ground and natural) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

The concentrations returned by the samples of made ground were not hazardous and as such, it is likely that the material represented by these samples would be suitable for acceptance and treatment at a typical soil and aggregates recycling facility (e.g., SR2010 No12).

The naturally occurring soils (London Clay) was free from visual and/or olfactory evidence or any suspicion of contamination, as confirmed by returning low concentrations of all potential contaminants and would be classified as soil and stones not containing hazardous substances (LoW Code 170504), suitable for disposal to an inert permitted landfill/facility without the need for testing. Furthermore, it is likely that the uncontaminated, naturally occurring arisings would be considered suitable for direct transfer to and reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste

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practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 23-75821

Project / Site name:	Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU	**Samples received on:**	19/12/2023
Your job number:	TJ3994C06	**Samples instructed on/ Analysis started on:**	20/12/2023
Your order number:	TJ3994C06	**Analysis completed by:**	29/12/2023
Report Issue Number:	1	**Report issued on:**	29/12/2023
Samples Analysed:	2 soil samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-75821
Project / Site name: Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU
Your Order No: TJ3994C06

Lab Sample Number				2916074	2916075
Sample Reference				NAT/1912/01	NAT/1912/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				19/12/2023	19/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	16
Total mass of sample received	kg	0.001	NONE	1.1	1.4

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.1	11.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1400	2700
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1600	920
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.792	0.458
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	792	458
Sulphide	mg/kg	1	MCERTS	190	210
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8	0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-75821
Project / Site name: Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU
Your Order No: TJ3994C06

Lab Sample Number				2916074	2916075
Sample Reference				NAT/1912/01	NAT/1912/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				19/12/2023	19/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.4	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	37	57
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1	0.94
Boron (water soluble)	mg/kg	0.2	MCERTS	1	1.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	33	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	37
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	8.8
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.6	0.95
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	48	42
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	68	56
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 23-75821
Project / Site name: Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2916074	NAT/1912/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2916075	NAT/1912/02	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 23-75821
Project / Site name: Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-75821
Project / Site name: Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-75825

Project / Site name:	Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU	**Samples received on:**	19/12/2023
Your job number:	TJ3994C05	**Samples instructed on/ Analysis started on:**	19/12/2023
Your order number:	TJ3994C05	**Analysis completed by:**	29/12/2023
Report Issue Number:	1	**Report issued on:**	29/12/2023
Samples Analysed:	2 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 23-75825
Project / Site name: Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU
Your Order No: TJ3994C05

Lab Sample Number				2916088	2916089
Sample Reference				MG/1912/01	MG/1912/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				19/12/2023	19/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	14
Total mass of sample received	kg	0.001	NONE	1.4	1.3
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.9	11.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	7000	6500
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	2200	620
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1.08	0.311
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	1080	311
Sulphide	mg/kg	1	MCERTS	93	110
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	0.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.06	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.11	0.1
Fluorene	mg/kg	0.05	MCERTS	0.09	0.1
Phenanthrene	mg/kg	0.05	MCERTS	0.82	0.49
Anthracene	mg/kg	0.05	MCERTS	0.18	0.12
Fluoranthene	mg/kg	0.05	MCERTS	1.3	0.76
Pyrene	mg/kg	0.05	MCERTS	1.1	0.69
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.5	0.29
Chrysene	mg/kg	0.05	MCERTS	0.49	0.33
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.58	0.42
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.23	0.16
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.47	0.31
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.28	0.18
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.3	0.21
Coronene	mg/kg	0.05	NONE	0.13	0.07

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	6.65	4.28

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-75825
Project / Site name: Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU
Your Order No: TJ3994C05

Lab Sample Number				2916088	2916089
Sample Reference				MG/1912/01	MG/1912/02
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				19/12/2023	19/12/2023
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.7	1.7
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	10
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	140
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.76	0.71
Boron (water soluble)	mg/kg	0.2	MCERTS	1.9	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	53	46
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.89	0.99
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	81	74
Petroleum Hydrocarbons					
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	53	48

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-75825
Project / Site name: Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2916088	MG/1912/01	None Supplied	None Supplied	Brown loam and sand with gravel.
2916089	MG/1912/02	None Supplied	None Supplied	Brown loam and sand with gravel.

Analytical Report Number : 23-75825
Project / Site name: Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 23-75825
Project / Site name: Ferry Island, Tottenham Hale, Plot B, High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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31st January 2024

FAO: Rob Welling

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on three samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 15/01/2024. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East, and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared, and a new road junction constructed, in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut, and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground, of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations, but it was detected at low concentrations in three samples of made ground tested. Made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel, and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 15/01/2024 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Three samples of natural ground from foundation level excavations (FL).

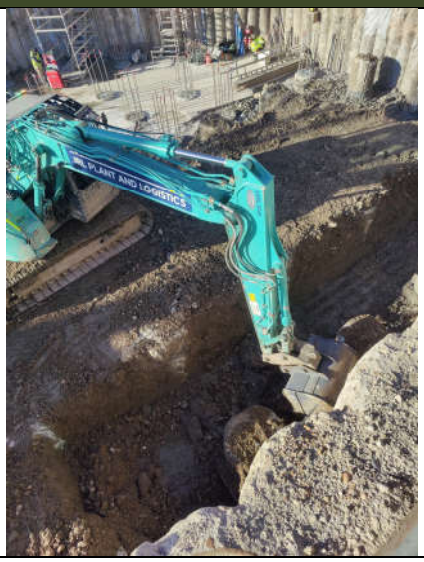
4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Natural Ground at Foundation Level (FL)

Sampling Date	Reference	Physical Description	Photograph
15/01/2024	FL/1501/01 FL/1501/02 FL/1501/03	Brown and dark grey, firm to stiff, slightly sandy, slightly gravelly clay with occasional fragments of concrete (from pile. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Natural Ground at Foundation Level (FL)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
FL/1501/01	NAD	No significant contamination	170504
FL/1501/02	NAD	No significant contamination	170504
FL/1501/03	NAD	No significant contamination*	170504

NAD No asbestos observed during sample preparation or detected in the sample.

* One sample from foundation level excavations (FL/1501/03) returned an elevated pH value. During sample preparation, soil samples are dried and then ground. If they contain fragments of concrete, the process increases the surface area of the concrete, thus temporarily exposing a significantly increased amount of calcium hydroxide to the analytical substrates (e.g. water), which frequently results in a temporarily increased pH value (≥11.5) during standard laboratory analysis of samples containing fragments of concrete. In this

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case, the elevated pH is therefore considered to be due to the presence of occasional alkaline construction materials (e.g. frequent fragments of concrete) in the sample that are crushed during sample preparation rather than the presence of other corrosive materials.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. As such, the material represented by the samples (made ground and natural) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

The concentrations returned by the samples of made ground were not hazardous and as such, it is likely that the material represented by these samples would be suitable for acceptance and treatment at a typical soil and aggregates recycling facility (e.g., SR2010 No12).

The naturally occurring soils (London Clay) was free from visual and/or olfactory evidence or any suspicion of contamination, as confirmed by returning low concentrations of all potential contaminants and would be classified as soil and stones not containing hazardous substances (LoW Code 170504), suitable for disposal to an inert permitted landfill/facility without the need for testing. Furthermore, it is likely that the uncontaminated, naturally occurring arisings would be considered suitable for direct transfer to and reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 24-78238

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU	**Samples received on:**	15/01/2024
Your job number:	TJ3994D01	**Samples instructed on/ Analysis started on:**	15/01/2024
Your order number:	TJ3994D01	**Analysis completed by:**	22/01/2024
Report Issue Number:	1	**Report issued on:**	22/01/2024
Samples Analysed:	3 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78238
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3994D01

Lab Sample Number				2928308	2928309	2928310
Sample Reference				FL/1501/01	FL/1501/02	FL/1501/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				15/01/2024	15/01/2024	15/01/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	13	12
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9	11.4	11.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	530	4800	6200
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	450	1000	1100
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.226	0.505	0.567
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	226	505	567
Sulphide	mg/kg	1	MCERTS	110	81	88
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8	0.4	0.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.28
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.09	0.11
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.07	0.09
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.76	0.98
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.19	0.21
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.2	1.5
Pyrene	mg/kg	0.05	MCERTS	< 0.05	1.1	1.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.52	0.6
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.59	0.63
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.61	0.68
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.28	0.21
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.51	0.56
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.25	0.28
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.28	0.28
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	6.42	7.63

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78238
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU
Your Order No: TJ3994D01

Lab Sample Number				2928308	2928309	2928310
Sample Reference				FL/1501/01	FL/1501/02	FL/1501/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				15/01/2024	15/01/2024	15/01/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	2.4	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	9.7	8.5
Barium (aqua regia extractable)	mg/kg	1	MCERTS	45	100	96
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5	0.77	0.82
Boron (water soluble)	mg/kg	0.2	MCERTS	2.3	0.9	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	47	20	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	35	33	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	18	57	47
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.28	0.75	0.75
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	41	14	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	80	32	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	89	73	72
Petroleum Hydrocarbons						
TPH C10 - C40 $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	32	26

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-78238
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2928308	FL/1501/01	None Supplied	None Supplied	Brown clay and sand with gravel.
2928309	FL/1501/02	None Supplied	None Supplied	Brown sandy clay with gravel.
2928310	FL/1501/03	None Supplied	None Supplied	Brown clay and sand with gravel.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-78238
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 24-78238
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Appendix J
Site Inspection Reports (Hotspot Validation Testing).

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Our Ref. TJ3885AR2

J. Reddington Limited
4 Elstree Way
Borehamwood
WD6 1RN

27th September 2022

FAO: Frank Everett

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Validation Sampling Report

Please find attached the results of laboratory testing carried out on ten samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 13/09/2022. The samples represent soils remaining in-situ around the sides and base of excavations undertaken to remove/segregate previously identified contamination.

1.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared and a new road junction constructed in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the site investigation but it was detected at low concentrations in three samples of made ground tested. The made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel and London Clay.

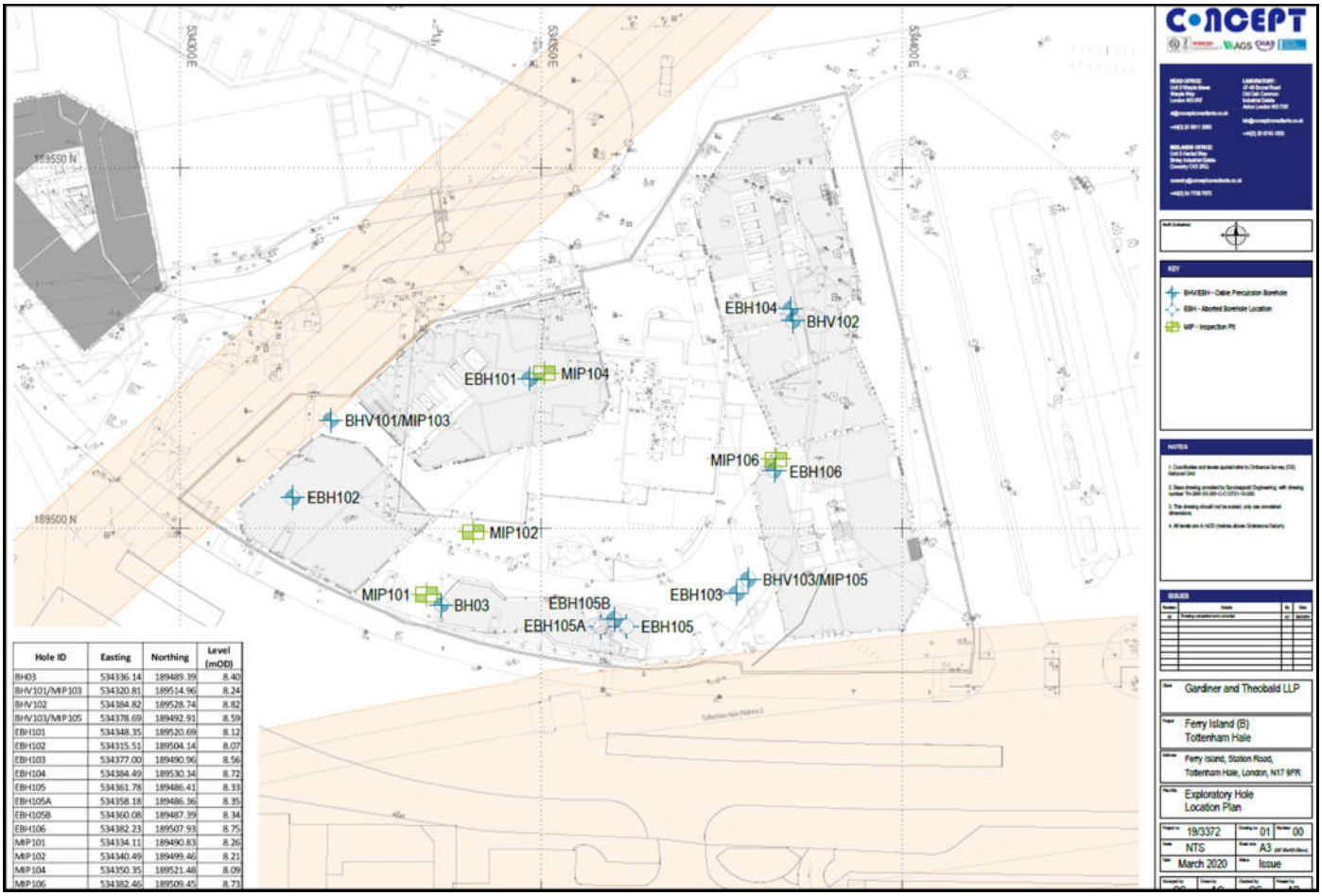
During the investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

2.0 SITE SAMPLING

A previous waste classification assessment undertaken by Powell Associates Limited (ref. JRLEFIWCR1 dated 22/02/2022) identified hazardous soil and stones (LoW Code 170503*) at two locations:

- BHV102 @ 0.0mbgl and 0.3mbgl due to elevated total petroleum hydrocarbons (TPH).
- EBH105B @ 2.5mbgl due to elevated TPH.

The locations are shown on the plan below:



Hole ID	Easting	Northing	Level (mOD)
BH03	534336.14	189489.39	8.40
BHV101/MIP103	534320.81	189514.96	8.24
BHV102	534384.82	189528.74	8.82
BHV103/MIP105	534378.69	189492.91	8.59
EBH101	534348.35	189520.69	8.12
EBH102	534315.51	189504.14	8.07
EBH103	534377.00	189490.96	8.56
EBH104	534384.49	189530.34	8.72
EBH105	534361.78	189486.41	8.33
EBH105A	534358.18	189486.36	8.35
EBH105B	534360.08	189487.39	8.34
EBH106	534382.23	189507.93	8.75
MIP101	534334.11	189490.83	8.26
MIP102	534340.49	189499.46	8.21
MIP104	534350.35	189521.48	8.09
MIP106	534382.46	189509.45	8.73

As part of the enabling works J. Reddington Limited (JRL) excavated out the visually impacted materials at the two locations to remove the hazardous soil and stones.

A geo-environmental engineer from TGEN visited the site on 13/09/2022 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, samples of materials were recovered from the four sides (N, S, E and W) and the base (B) of each of the excavations in order to demonstrate that the hazardous material had been successfully removed or, if not, that additional excavation was required to extend the excavation laterally and/or vertically in order to remove additional materials. If the latter, then the validation process would need to be repeated.

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2.1 Hotspot Excavations

Hotspot excavations were undertaken at the following locations where hazardous waste had been identified in previous site investigations:

BHV102

Sampling Date	Reference	Physical Description	Photograph
13/09/2022	BHV102-V1-N BHV102-V1-S BHV102-V1-E BHV102-V1-W BHV102-V1-B	At BHV102, made ground was previously encountered to a depth of circa 0.95mbgl, underlain by Enfield Silt. Elevated TPH was encountered in the top 0.3m of the profile. A thin layer of dark brown/black made ground was encountered at near surface with occasional fragments of asphalt. This material was chased out to a depth of circa 0.95mbgl. The excavation measured circa 5m by 5m and was circa 0.95m deep. The soils around the sides were a brown, sandy silty clay made ground with gravel and occasional fragments of brick and concrete. The soils at the base were an orange/brown sandy silt. There was no significant odour in the soils around the base and sides of the excavation and the PID readings were <1ppm. No asbestos was seen during the sampling.	

EBH105B

Sampling Date	Reference	Physical Description	Photograph
13/09/2022	EBH105B-V1-N EBH105B-V1-S EBH105B-V1-E EBH105B-V1-W EBH105B-V1-B	At EBH105B, made ground was previously encountered to a depth of circa 3.7mbgl. Whilst the previous VOC readings were low (0ppm) a sample from 2.5mbgl returned an elevated concentration of TPH. The overlying made ground was excavated out until a depth of 2.5m was achieved. The excavation was progressed to circa 3.5m deep, although was hampered by water ingress. The excavation measured circa 3.5m by 5m and was circa 3.5m deep. The soils around the sides and base of the excavation were a dark grey, slightly sandy gravel with occasional fragments of brick, concrete, glass, plastic and wire. There was no significant odour in the soils around the base and sides of the excavation and the PID readings were <1ppm. No asbestos was seen during the sampling.	

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2.2 Validation Testing

The samples were subjected to a programme of testing targeted at the elevated/hazardous compound(s), in this case TPH and PAH, identified in the previous investigation(s). The laboratory test reports are presented in Appendix A, which can be summarised as follows.

BHV102

Ref	Chemical Summary	Waste Classification
	Solid	LoW Code
BHV102-V1-N	No significant contamination, low concentrations of TPH and PAH.	170504
BHV102-V1-S	No significant contamination, low concentrations of TPH and PAH.	170504
BHV102-V1-E	No significant contamination, low concentrations of TPH and PAH.	170504
BHV102-V1-W	No significant contamination, low concentrations of TPH and PAH.	170504
BHV102-V1-B	No significant contamination, low concentrations of TPH and PAH.	170504

The samples of soil from around the perimeter and base of the hotspot excavation at BHV102 returned low concentrations of TPH and PAH. None of the concentrations would be considered hazardous and demonstrated the successful removal of the previously identified hazardous TPH contamination at this location.

EBH105B

Ref	Chemical Summary	Waste Classification
	Solid	LoW Code
EBH105B-V1-N	No significant contamination, low concentrations of TPH and PAH.	170504
EBH105B-V1-S	No significant contamination, low concentrations of TPH and slightly elevated PAH.	170504
EBH105B-V1-E	No significant contamination, low concentrations of TPH and PAH.	170504
EBH105B-V1-W	No significant contamination, low concentrations of TPH and PAH.	170504
EBH105B-V1-B	No significant contamination, low concentrations of TPH and slightly elevated PAH.	170504

The samples of soil from around the perimeter and base of the hotspot excavation at EBH105 returned low concentrations of TPH and generally low concentrations of PAH. At two locations (S face and Base) the samples returned slightly elevated concentrations of PAH. None of the concentrations returned by the samples would be considered hazardous and as such, whilst there is some residual contamination in the made ground at this location, the results demonstrate the successful removal of the previously identified hazardous TPH contamination at this location.

3.0 SUMMARY

The samples of soil recovered from the sides and base of the hotspot excavations at BHV102 and EBH105 returned concentrations of TPH and PAH that were not hazardous, significantly below that returned by the samples recovered during the previous site investigation demonstrating the successful removal of the hazardous soils at these locations.

Whilst no further hotspot excavation is considered necessary at these two locations, we would recommend that during future phases of the development a discovery strategy for unexpected contamination is implemented in the event that soils of an unusual appearance and/or odour are encountered across other parts of the site.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci, CSci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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4.0 LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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Analytical Report Number : 22-83956

Project / Site name:	Ferry Island, Tottenham Hale Plot B, 125-139 High Cross Road, London N179NU	**Samples received on:**	14/09/2022
Your job number:	TJ3885A02	**Samples instructed on/ Analysis started on:**	14/09/2022
Your order number:	TJ3885A02	**Analysis completed by:**	21/09/2022
Report Issue Number:	1	**Report issued on:**	21/09/2022
Samples Analysed:	5 soil samples		

Signed:

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 22-83956
Project / Site name: Ferry Island, Tottenham Hale Plot B, 125-139 High Cross Road, London N179NU
Your Order No: TJ3885A02

Lab Sample Number				2423790	2423791	2423792	2423793	2423794
Sample Reference				BHV102-V1-N	BHV102-V1-S	BHV102-V1-E	BHV102-V1-W	BHV102-V1-B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				13/09/2022	13/09/2022	13/09/2022	13/09/2022	13/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	15	14	12	10
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9	0.9	0.9
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.52	< 0.05	< 0.05	0.29	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.1	< 0.05	< 0.05	0.6	< 0.05
Pyrene	mg/kg	0.05	MCERTS	1	< 0.05	< 0.05	0.56	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.63	< 0.05	< 0.05	0.51	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.55	< 0.05	< 0.05	0.35	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.64	< 0.05	< 0.05	0.58	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.45	< 0.05	< 0.05	0.2	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.64	< 0.05	< 0.05	0.41	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.32	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.34	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	6.23	< 0.80	< 0.80	3.5	< 0.80
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-83956
Project / Site name: Ferry Island, Tottenham Hale Plot B, 125-139 High Cross Road, London N179NU
Your Order No: TJ3885A02

Lab Sample Number				2423790	2423791	2423792	2423793	2423794
Sample Reference				BHV102-V1-N	BHV102-V1-S	BHV102-V1-E	BHV102-V1-W	BHV102-V1-B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				13/09/2022	13/09/2022	13/09/2022	13/09/2022	13/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	0.1
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.9
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	29
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	73
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	63
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	170
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	23
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	11	< 10	< 10	12	48
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	20	< 10	< 10	24	21
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	31	< 10	< 10	36	92

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-83956
Project / Site name: Ferry Island, Tottenham Hale Plot B, 125-139 High Cross Road, London N179NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2423790	BHV102-V1-N	None Supplied	None Supplied	Light brown clay and sand with gravel.
2423791	BHV102-V1-S	None Supplied	None Supplied	Brown clay and sand.
2423792	BHV102-V1-E	None Supplied	None Supplied	Brown clay and sand.
2423793	BHV102-V1-W	None Supplied	None Supplied	Brown clay and loam with gravel.
2423794	BHV102-V1-B	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 22-83956
Project / Site name: Ferry Island, Tottenham Hale Plot B, 125-139 High Cross Road, London N179NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-83950

Project / Site name:	Ferry Island Tottenham Hale Plot B 123-139 High Cross Road London N17 9NU	**Samples received on:**	14/09/2022
Your job number:	TJ3885A03	**Samples instructed on/ Analysis started on:**	14/09/2022
Your order number:	TJ3885A03	**Analysis completed by:**	22/09/2022
Report Issue Number:	1	**Report issued on:**	22/09/2022
Samples Analysed:	5 soil samples		

Signed:

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 22-83950
Project / Site name: Ferry Island Tottenham Hale Plot B 123-139 High Cross Road London N17 9NU
Your Order No: TJ3885A03

Lab Sample Number				2423764	2423765	2423766	2423767	2423768
Sample Reference				EBH105-V1-N	EBH105-V1-S	EBH105-V1-E	EBH105-V1-W	EBH105-V1-B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				13/09/2022	13/09/2022	13/09/2022	13/09/2022	13/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	10	6.5	9.1	15	15
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9	0.9	0.9
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	3.1	< 0.05	< 0.05	0.33
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	2.3	0.3	1.3	2.4
Fluorene	mg/kg	0.05	MCERTS	< 0.05	1.3	< 0.05	0.86	1.7
Phenanthrene	mg/kg	0.05	MCERTS	0.83	7.7	2.3	8	23
Anthracene	mg/kg	0.05	MCERTS	< 0.05	6.7	0.69	2.2	6.2
Fluoranthene	mg/kg	0.05	MCERTS	1.8	7.9	4	11	45
Pyrene	mg/kg	0.05	MCERTS	1.8	8	3.6	9.9	41
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.4	4.8	3.1	6.2	27
Chrysene	mg/kg	0.05	MCERTS	0.87	4.4	2	3.6	17
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.3	16	2.9	6	24
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.67	6.7	1.4	2.6	12
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.2	20	2.3	6	24
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.6	5.4	1.4	2.7	11
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	1.3	0.28	0.74	2.3
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.76	7.8	1.9	3.6	13
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	11.1	104	26.2	64.8	250
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	2.5	< 2.0	4	2.2
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	14	< 8.0	15	15
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	80	110	23	49	66
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	88	130	23	68	83

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Analytical Report Number: 22-83950
Project / Site name: Ferry Island Tottenham Hale Plot B 123-139 High Cross Road London N17 9NU
Your Order No: TJ3885A03

Lab Sample Number				2423764	2423765	2423766	2423767	2423768
Sample Reference				EBH105-V1-N	EBH105-V1-S	EBH105-V1-E	EBH105-V1-W	EBH105-V1-B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				13/09/2022	13/09/2022	13/09/2022	13/09/2022	13/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	9.3	< 2.0	5.8	9.8
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	58	12	50	100
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	19	240	48	83	160
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	21	310	60	140	270

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-83950
Project / Site name: Ferry Island Tottenham Hale Plot B 123-139 High Cross Road London N17 9NU

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2423764	EBH105-V1-N	None Supplied	None Supplied	Brown sandy loam with gravel.
2423765	EBH105-V1-S	None Supplied	None Supplied	Brown clay and sand with gravel and rubble.
2423766	EBH105-V1-E	None Supplied	None Supplied	Brown sand with gravel.
2423767	EBH105-V1-W	None Supplied	None Supplied	Brown clay and loam with gravel and brick.
2423768	EBH105-V1-B	None Supplied	None Supplied	Brown clay and loam with gravel and brick.

Analytical Report Number : 22-83950
Project / Site name: Ferry Island Tottenham Hale Plot B 123-139 High Cross Road London N17 9NU

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Appendix K
Site Inspection Reports (Formation Level Testing).

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22nd February 2024

FAO: Rob Welling

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on four samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 08/02/2024. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East, and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared, and a new road junction constructed, in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut, and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground, of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations, but it was detected at low concentrations in three samples of made ground tested. Made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel, and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 08/02/2024 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Four samples of natural ground from foundation level excavations (FL).

4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Natural Ground at Foundation Level (FL)

Sampling Date	Reference	Physical Description	Photograph
08/02/2024	FL/0802/01 FL/0802/02 FL/0802/03 FL/0802/04	Brown and dark grey, firm to stiff, slightly sandy, slightly silty clay. There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Natural Ground at Foundation Level (FL)

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
FL/0802/01	NAD	No significant contamination	170504
FL/0802/02	NAD	No significant contamination	170504
FL/0802/03	NAD	No significant contamination	170504
FL/0802/04	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. As such, the material represented by the samples (natural ground from foundation level) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

The concentrations returned by the samples of made ground were not hazardous and as such, it is likely that the material represented by these samples would be suitable for acceptance and treatment at a typical soil and aggregates recycling facility (e.g., SR2010 No12).

The naturally occurring soils (London Clay) was free from visual and/or olfactory evidence or any suspicion of contamination, as confirmed by returning low concentrations of all potential contaminants and would be classified as soil and stones not containing hazardous substances (LoW Code 170504), suitable for disposal to an inert permitted landfill/facility without the need for testing. Furthermore, it is likely that the uncontaminated, naturally occurring arisings would be considered suitable for direct transfer to and reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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e: reception@i2analytical.com

Analytical Report Number : 24-002288

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)	**Samples received on:**	08/02/2024
Your job number:	TJ3994E01	**Samples instructed on/ Analysis started on:**	08/02/2024
Your order number:	TJ3994E01	**Analysis completed by:**	15/02/2024
Report Issue Number:	1	**Report issued on:**	20/02/2024
Samples Analysed:	4 soil samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-002288
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)
Your Order No: TJ3994E01

Lab Sample Number				113352	113353	113354	113355
Sample Reference				FL/0802/01	FL/0802/02	FL/0802/03	FL/0802/04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				08/02/2024	08/02/2024	08/02/2024	08/02/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	29	21	22	25
Total mass of sample received	kg	0.1	NONE	1.4	1.5	1.4	1.5
Asbestos							
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	IZJ	IZJ
General Inorganics							
pH (L099)	pH Units	N/A	MCERTS	8.3	8.5	8.6	8.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	540	1600	580	520
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	450	1500	470	500
Water Soluble SO4 16hr extraction (2:1)	mg/l	1.25	MCERTS	227	732	233	248
Sulphide	mg/kg	1	MCERTS	230	150	200	180
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.9	0.9	0.9	0.8
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.18	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.17	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.14	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.07	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH							
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85	< 0.85	< 0.85

Analytical Report Number: 24-002288
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)
Your Order No: TJ3994E01

Lab Sample Number				113352	113353	113354	113355
Sample Reference				FL/0802/01	FL/0802/02	FL/0802/03	FL/0802/04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				08/02/2024	08/02/2024	08/02/2024	08/02/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3	< 1.0	3.4	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	16	19	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	47	220	62	46
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4	1.3	1.7	1.4
Boron (water soluble)	mg/kg	0.2	MCERTS	3.1	1	1.2	2.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	48	43	57	46
Copper (aqua regia extractable)	mg/kg	1	MCERTS	36	34	38	31
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17	20	21	17
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	< 0.25	0.34	0.33	< 0.25
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	46	44	55	38
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	86	70	110	85
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	84	85	95	80

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 24-002288
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
113352	FL/0802/01	None Supplied	None Supplied	Grey clay with gravel
113353	FL/0802/02	None Supplied	None Supplied	Grey clay with gravel
113354	FL/0802/03	None Supplied	None Supplied	Grey clay with gravel
113355	FL/0802/04	None Supplied	None Supplied	Grey clay with gravel

Analytical Report Number : 24-002288
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS

Analytical Report Number : 24-002288
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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14th March 2024

FAO: Rob Welling

Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Waste Classification Report

Please find attached the results of laboratory testing carried out on three samples of soil recovered from Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 04/03/2024. The samples represent made ground and natural ground (soil and stones) being generated from enabling works excavations and will be excess to requirements and need to be removed from site.

2.0 SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East, and Ashley Road West. Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared, and a new road junction constructed, in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut, and Maplin, with associated car parking.

The proposed THC development essentially comprises the demolition of the existing structures and the construction of residential-led development with retail/business uses alongside; servicing, highways improvements and public amenity space including soft and hard landscaped areas creating an improved public realm.

We understand that as part of the development there will be a shallow reduced level excavation followed by placement of a pile mat, piling, pile cap excavations and a deep basement excavation, which will generate in total circa 26790m^3 of material for disposal from site as waste. It is likely that circa 7170m^3 (27%) of the arisings will be made ground, of which circa 2870m^3 will be pile mat and hardstanding, and circa 19620m^3 (73%) will be uncontaminated and inert natural soil and pile arisings.

The anticipated geology at the Ferry Island site comprises made ground overlying superficial deposits of Enfield Silt and River Terrace Deposits. The London Clay is at depth and in the order of 15m thick, underlain by the Lambeth Group, Thanet Sand and White Chalk.

Two site investigation reports have been prepared by Langan International (ref. 841011101 dated 26/07/2018 and 04/11/2021) on behalf of Whitby Wood, which comprised the progression of thirteen exploratory holes. The strata encountered confirmed the anticipated geology and comprised made ground, on average circa 1.7m thick, typically containing only a small quantity of deleterious materials, such as fragments of clinker and tarmac, with no visual or olfactory evidence of significant contamination. Asbestos containing material was not visible during the previous site investigations, but it was detected at low concentrations in three samples of made ground tested. Made ground overlies natural and uncontaminated (inert) Enfield Silt, Kempton Park Gravel, and London Clay.

During the previous investigations thirty-five samples were taken from the thirteen exploratory hole locations to depths of up to 6.2mbgl representing circa 26790m^3 of enabling works excavations at the site.

3.0 SITE SAMPLING

A geo-environmental engineer from TGEN visited the site on 04/03/2024 to assess the nature of the strata encountered. This included:

- A physical description of the arisings in accordance with relevant AGS and BSI standards.
- An assessment of visual and olfactory evidence of contamination.
- The recovery of representative samples.
- The submission of samples to a UKAS/MCERTS accredited laboratory for analysis.

During the visit, routine reassurance samples of materials were recovered and included the following:

- Three samples of natural ground from foundation level excavations (FL) at Building 2.

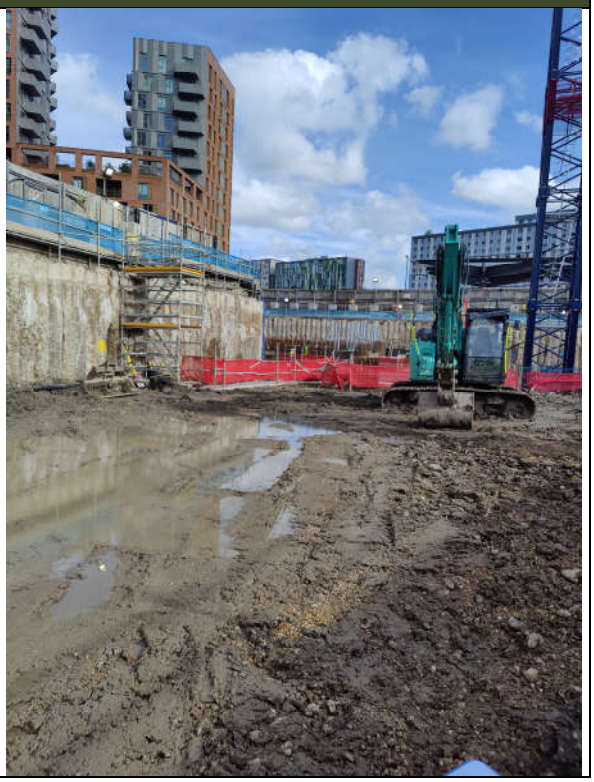
4.0 MATERIALS ASSESSMENT

In accordance with the LoW (as amended), the CD&E arisings encountered during this sampling exercise are mirror entries with a mirror hazardous (MH) entry and a mirror non-hazardous (MN) entry as follows:

- Soil and stones containing dangerous substances (LoW Code 170503*) – MH.
- Soil and stones not containing dangerous substances (LoW Code 170504) - MN.

4.1 Physical Appearance of the Waste

Natural Ground at Foundation Level (FL) – Building 2

Sampling Date	Reference	Physical Description	Photograph
04/03/2024	FL/0403/01 FL/0403/02 FL/0403/03	Brown and dark grey, firm to stiff, slightly sandy, slightly silty clay (London Clay). There was no significant odour and the PID reading was <1ppm. No asbestos was seen during the sampling and there was no visual or olfactory evidence of contamination. Based on the physical description, the natural ground arisings could be described as: Soil and stones not containing dangerous substances (LoW Code 170504) - MN.	

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4.2 Chemical Nature of the Waste

The samples were subjected to a programme of laboratory testing, which included an asbestos screen and a suite of potential contaminants associated with a wide range of potential activities to confirm the preliminary waste classification based on the physical description of the material sampled. The laboratory test reports are presented in Appendix A, which can be summarised as follows.

Natural Ground at Foundation Level (FL) – Building 2

Ref	Chemical Summary		Waste Classification
	Asbestos	Solid	LoW Code
FL/0403/01	NAD	No significant contamination	170504
FL/0403/02	NAD	No significant contamination	170504
FL/0403/03	NAD	No significant contamination	170504

NAD No asbestos observed during sample preparation or detected in the sample.

5.0 SUMMARY

No asbestos was observed during the sampling, and none was detected in the samples, which all returned low concentrations of potential contaminants. As such, the material represented by the samples (natural ground from foundation level) would be classified as:

- **Soil and stones not containing hazardous substances (LoW Code 170504).**

The concentrations returned by the samples of made ground were not hazardous and as such, it is likely that the material represented by these samples would be suitable for acceptance and treatment at a typical soil and aggregates recycling facility (e.g., SR2010 No12).

The naturally occurring soils (London Clay) was free from visual and/or olfactory evidence or any suspicion of contamination, as confirmed by returning low concentrations of all potential contaminants and would be classified as soil and stones not containing hazardous substances (LoW Code 170504), suitable for disposal to an inert permitted landfill/facility without the need for testing. Furthermore, it is likely that the uncontaminated, naturally occurring arisings would be considered suitable for direct transfer to and reuse on a development site in line with a materials management plan in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoWCoP).

We would recommend that during any excavation associated with future phases of the development, should materials previously unidentified during the various investigations be encountered (e.g., an unusual appearance and/or odour etc.), works are halted in that area and the advice of a geo-environmental specialist be sought to determine an appropriate course of action. We would also advise you to employ routine waste practices when managing the disposal of the waste material (i.e. visual and olfactory inspections of all loads leaving the site) to ensure that the material remains consistent and suitable for recovery or disposal at your chosen facility in accordance with level 1, level 2 and level 3 waste acceptance procedures. Please be aware that your duty of care paperwork now needs to include the following:

- The relevant UK SIC Code.
- A declaration that you have fulfilled your duty to apply the waste hierarchy.
- The relevant LoW Code.

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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WASTE CLASSIFICATION FRAMEWORK

One of the relevant objectives of the Revised Waste Framework (WFD) Directive (2018/851/EC) is to ensure that waste is recovered or disposed without endangering human health and without using processes or methods which could harm the environment, and without:

- Risk to water, air, soil, plants, or animals.
- Causing nuisance through noise or odours.
- Adversely affecting the countryside or places of special interest.

It also provides the general framework of waste management requirements and sets the basic EU waste management definitions. The List of Waste (LoW) Amendment Decision (2014/955/EU) establishes the classification system, including the distinction between hazardous and non-hazardous wastes. It is closely linked to the main characteristics that render waste hazardous as contained in Annex III of the WFD. The amendments came into force to align waste classification with relevant sections of and approaches used in EU chemicals regulations, such as REACH (1907/2006/EC) and the CLP (1272/2008/EC), which in turn adapt for the EU the UN globally harmonised system for chemicals classification. In 2020 and 2021, GB and the UK introduced its own set of waste classification regulations, such as the CLP, REACH and the mandatory classification and labelling list, which retain, mirror and/or replace relevant EU regulations.

Waste is not considered to be a substance, a mixture or an article. Consequently, obligations under the REACH and the CLP regulations do not apply for producers or holders of waste. Nevertheless, information generated in the frameworks of REACH and the CLP that set criteria for substances to be classified as hazardous are related to some of the hazardous properties applicable to the classification of waste. Annex VI of the CLP contains official harmonised classifications of substances, which must be used where the classification of waste depends on the presence of hazardous substances. The classification of substances is periodically updated by the European Chemicals Agency in the form of a new EU regulation, which automatically amends the CLP.

The Landfill Directive (1999/31/EC) defines the categories of waste applicable to landfill sites as hazardous, non-hazardous, municipal and inert. A landfill is defined as a waste disposal site for the deposit of waste onto or into land. Landfills are divided into three classes:

- Landfills for hazardous waste.
- Landfills for non-hazardous waste.
- Landfills for inert waste.

The three main categories of waste and the options for landfilling are as follows:

- Hazardous with or without additional treatment prior to landfill or stable non-reactive hazardous waste (SNRHW) suitable for placement in a dedicated cell in a suitably permitted non-hazardous landfill site.
- Non-hazardous.
- Inert and suitable for disposal to an appropriately permitted landfill site.

To determine the presence and significance of hazards associated with any construction, demolition and earthworks (CD&E) arisings and therefore the resultant options for management of the materials, and where necessary the appropriate class of facility the waste can be taken to, it is therefore necessary to:

- Determine the presence of hazardous properties within the materials.
- Determine the category of the waste.
- Determine if the waste meets the requirements for reuse onsite, recovery or recycling on or offsite, or disposal offsite as waste.

The main statutory guidance document used to properly classify waste as either hazardous or non-hazardous in the UK is Guidance on the Classification and Assessment of Waste (WM3). The stepped methodology for classifying a waste and assessing any hazardous properties is as follows:

- Check if the waste needs to be classified.
- Identify the code that may apply to the waste.
- Identify the assessment required to select the correct code.
- Determine the chemical composition of the waste.
- Determine if the substances in the waste are hazardous substances or persistent organic pollutants.
- Assess the hazardous properties of the waste.
- Assign and describe the classification code.

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The waste types disposed to a landfill site permitted to accept inert waste or recovered at a site permitted or exempted in accordance with UK regulations and statutory guidance should be classified as inert. No hazardous or contaminated wastes, as defined in the Waste Acceptance Criteria (WAC) and Procedures Directive (2003/33/EC), should be accepted at such sites. The source and origin of the waste along with a description (e.g. physical form, consistency, composition, colour, odour and likely behaviour etc.) should be determined for all material accepted at such inert waste facilities. The materials should be stable, non-reactive and with a sufficient bearing capacity for the end use.

In accordance with the Landfill Directive and UK statutory guidance, the only materials allowed for disposal or recovery at such inert waste facilities without more detailed information (e.g. chemical analyses, site investigation data etc.) should be restricted to single source material from a known site and a reliable producer. The material from the site or source should not be contaminated and should not contain significant quantities of deleterious materials such as wood, plastic etc. Materials potentially suitable for recovery at such inert waste facilities without laboratory analysis should be restricted to the following:

LoW Code	Description	Restrictions
170101	Concrete	Selected CD&E waste only
170102	Bricks	Selected CD&E waste only
170103	Tiles & Ceramics	Selected CD&E waste only
170107	Mixture of Concrete, Bricks, Tiles & Ceramics	Selected CD&E waste only
170504	Soil & Stones (e.g. natural clay & sand etc.)	Selected CD&E waste not from contaminated sites*
200202	Soil & Stones (e.g. natural clay & sand etc.)	Selected garden & park waste only*

- *Excluding topsoil or peat when used as subsoil or fill.
- Selected CD&E or garden & park waste with low (non-significant) contents of other types of materials (i.e. metals, plastics, organics, wood, rubber etc.). The origin of the waste must be known and relevant information regarding the waste must have been assessed.
- No CD&E waste from buildings or land contaminated with dangerous substances (e.g. 170106 & 170503).
- No CD&E waste from buildings treated or painted with dangerous substances in significant amounts.
- These materials should only be accepted if they arise from a single identified source.
- Mixtures of different types of these wastes from the same single source are acceptable without testing.
- Mixtures of these wastes from different sources are not acceptable unless pre-testing is carried out.

If the waste materials were determined as hazardous or potentially inert and required disposal to landfill, then a further stage of assessment would be required to determine if the waste meets the requirements for disposal at a particular category of landfill facility. This is done in the form of WAC testing. It should be noted that the associated regulations and statutory guidance do not apply to the use of suitable uncontaminated waste for redevelopment, restoration and filling in work or for construction purposes, or for recovery activities.

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A Laboratory Test Reports.

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e: reception@i2analytical.com

Analytical Report Number : 24-006611

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL	**Samples received on:**	04/03/2024
Your job number:	TJ3994F01	**Samples instructed on/ Analysis started on:**	04/03/2024
Your order number:	TJ3994F01	**Analysis completed by:**	08/03/2024
Report Issue Number:	1	**Report issued on:**	10/03/2024
Samples Analysed:	3 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-006611
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL
Your Order No: TJ3994F01

Lab Sample Number				133637	133638	133639
Sample Reference				FL/0403/01	FL/0403/02	FL/0403/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				04/03/2024	04/03/2024	04/03/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	23	25	23
Total mass of sample received	kg	0.1	NONE	1	1	0.9
Asbestos						
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN	MJN
General Inorganics						
pH (L099)	pH Units	N/A	MCERTS	10	9.9	10.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1900	2100	2200
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1500	1800	1700
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	749	899	855
Sulphide	mg/kg	1	MCERTS	120	110	92
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8	0.8	0.7
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.07	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.07	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.19	0.67	0.25
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.14	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.27	0.66	0.3
Pyrene	mg/kg	0.05	MCERTS	0.24	0.57	0.26
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.08	0.2	0.11
Chrysene	mg/kg	0.05	MCERTS	0.1	0.24	0.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.1	0.26	0.11
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.09	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.08	0.2	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.1	< 0.05
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.11	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Total PAH						
Total WAC-17 PAHs	mg/kg	0.85	NONE	1.05	3.38	1.12

Analytical Report Number: 24-006611
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL
Your Order No: TJ3994F01

Lab Sample Number				133637	133638	133639
Sample Reference				FL/0403/01	FL/0403/02	FL/0403/03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				04/03/2024	04/03/2024	04/03/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.8	3	3.9
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	15	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	66	65	61
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3	1.2	1
Boron (water soluble)	mg/kg	0.2	MCERTS	2.6	2.8	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	41	40	33
Copper (aqua regia extractable)	mg/kg	1	MCERTS	34	35	28
Lead (aqua regia extractable)	mg/kg	1	MCERTS	30	25	22
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.44	0.95	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	36	39	29
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.1
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	73	72	57
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	81	80	66
Petroleum Hydrocarbons						
TPH (C10 - C40) EH_CU_1D_TOTAL_#1_#2	mg/kg	10	MCERTS	49	13	21

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

Analytical Report Number : 24-006611
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
133637	FL/0403/01	None Supplied	None Supplied	Brown clay
133638	FL/0403/02	None Supplied	None Supplied	Brown clay
133639	FL/0403/03	None Supplied	None Supplied	Brown clay

Analytical Report Number : 24-006611
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS

Analytical Report Number : 24-006611
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRL

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Appendix L
Waste Carrier Licenses.

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Certificate of Registration under the Waste (England and Wales) Regulations 2011

Regulation authority

Name	Environment Agency
Address	National Customer Contact Centre 99 Parkway Avenue Sheffield S9 4WF
Telephone number	03708 506506

The Environment Agency certify that the following information is entered in the register which they maintain under regulation 28 of the Waste (England and Wales) Regulations 2011.

Carriers details

Name of registered carrier	JRL Environmental Limited
Registered as	An upper tier waste carrier, broker and dealer
Registration number	CBDU86520
Address of place of business	4 Elstree Way Borehamwood WD6 1RN
Telephone number	07500 661 748
Date of registration	4 January 2022
Expiry date of registration (unless revoked)	4 February 2025

Making changes to your registration

Your registration will last 3 years and will need to be renewed after this period. If any of your details change, you must notify us within 28 days of the change.

Certificate of Registration under the Waste (England and Wales) Regulations 2011

Regulation authority

Name	Environment Agency
Address	National Customer Contact Centre 99 Parkway Avenue Sheffield S9 4WF
Telephone number	03708 506506

The Environment Agency certify that the following information is entered in the register which they maintain under regulation 28 of the Waste (England and Wales) Regulations 2011.

Carriers details

Name of registered carrier	JRL ENVIRONMENTAL LIMITED
Registered as	An upper tier waste carrier, broker and dealer
Registration number	CBDU569104
Address of place of business	Jrl Environmental 4 Elstree Way Borehamwood WD61RN
Date of registration	5 February 2025
Expiry date of registration (unless revoked)	5 February 2028

This certificate was created on 5 February 2025. These details are correct at the time of certificate generation.

This copy has been issued under Regulation 6 of Waste (England and Wales) Amendment Act 2014 by the Environment Agency. This is copy number 1 of the certificate.

Making changes to your registration

Your registration will last 3 years and will need to be renewed after this period. If any of your details change, you must notify us within 28 days of the change.

Appendix M
Selection of Waste Transfer Notes (WTN).

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JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - LAND AND WATER

Land and Water, Marshes Cold Harbour Lane
Marshes Cold Harbour Lane
RM13 9YQ

Waste Code:

Issued By:

Ticket No: 1100300520

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: NK22ZYZ

Driver: VADIM NICORICI

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 649769

Site Name: Land and Water, Marshes Cold Harbour Lane

Date: 22/09/2022

Time on Site: 13:39

Time off Site:

Customer Order Ref:

Product: SAS

SOIL AND STONE

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - FCCCRICK

FCC - CRICKLEWOOD
400 CRICKLEWOOD RAILWAY YARD
REAR OF 400 EDGWARE ROAD
CRICKLEWOOD
NW2 6ND

Waste Code:

Issued By:

Ticket No: 1100302811

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: KU68GJG

Driver: BYRON CARTY

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 655710

Site Name: FCC - CRICKLEWOOD

Date: 29/09/2022

Time on Site:

Time off Site:

Customer Order Ref:

Product: NHMA

NON HAZ MUCK AWAY

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - GRSTYTT

GRS TARMAC TYTTENHANGER
LARFARGE AGGREGATES LIMITED
TYTTENHANGER LANDFILL
COURSERS ROAD
AL4 0PF

Waste Code:

Issued By:

Ticket No: 1100303286

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: KU69XRX

Driver: ADRIAN HASAS

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 643189

Site Name: GRS TARMAC TYTTENHANGER

Date: 29/09/2022

Time on Site:

Time off Site:

Customer Order Ref:

Product: SAS

SOIL AND STONE

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - KELTBRAY, SILVERTOWN

KELTBRAY - SILVERTOWN
THAMES WHARF-WASTE IN
THAMES WHARF
DOCK ROAD
E16 2AF

Waste Code:

Issued By:

Ticket No: 1100308787

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GD22AYF

Driver: BOGDAN TITA

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: JREDDI/FI003

Site Name: KELTBRAY - SILVERTOWN

Date: 13/10/2022

Time on Site: 12:21

Time off Site:

Customer Order Ref:

Product: HS

HAZARDOUS SOILS

EWC: 170503

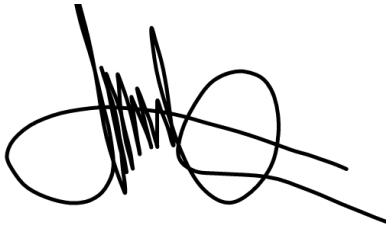
Unit Of Sale: LOAD

Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - KELTBRAY, SILVERTOWN

KELTBRAY - SILVERTOWN
THAMES WHARF-WASTE IN
THAMES WHARF
DOCK ROAD
E16 2AF

Waste Code:

Issued By:

Ticket No: 1100308788

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GD22AYJ

Driver: MICHAEL SOUTHION

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: JREDDI/FI002

Site Name: KELTBRAY - SILVERTOWN

Date: 13/10/2022

Time on Site: 13:10

Time off Site:

Customer Order Ref:

Product: HS

HAZARDOUS SOILS

EWC: 170503

Unit Of Sale: LOAD

Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: JRLSILVPO

SILVERTOWN - PRODUCT OUT
JRL ENVIRONMENTAL
KNIGHTS ROAD
SILVERTOWN

Waste Code:

Issued By:

Ticket No: 1100313203

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: KU68GGJ

Driver: SILVIU

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 646401

Site Name: SILVERTOWN - PRODUCT OUT

Date: 27/10/2022

Time on Site:

Time off Site:

Customer Order Ref:

Product: SM

SCREENABLE MATERIAL

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - FCCBOW

FCC - BOW
MARSHGATE SIDINGS
PUDDING MILL LANE
BOW
E15 2PJ

Waste Code:

Issued By:

Ticket No: 1100317276

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YVR
Driver: RAZVAN LUPASCU
Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104
Incoming Ref No: 651747
Site Name: FCC - BOW
Date: 08/11/2022
Time on Site: 16:01
Time off Site:
Customer Order Ref:

Product: NHMA

NON HAZ MUCK AWAY

EWC: 170504

Unit Of Sale: LOAD
Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - LAND AND WATER

Land and Water, Marshes Cold Harbour Lane
Marshes Cold Harbour Lane
RM13 9YQ

Waste Code:

Issued By:

Ticket No: 1100328361

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: KU68GJY

Driver: CARL KIRBY

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 651705

Site Name: Land and Water, Marshes Cold Harbour Lane

Date: 09/12/2022

Time on Site: 15:41

Time off Site:

Customer Order Ref:

Product: SAS

SOIL AND STONE

EWC: 170504

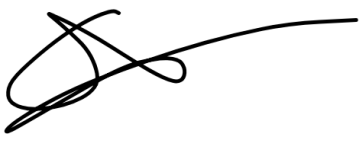
Unit Of Sale: LOAD

Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - FCCBOW

FCC - BOW
MARSHGATE SIDINGS
PUDDING MILL LANE
BOW
E15 2PJ

Waste Code:

Issued By:

Ticket No: 1100328985

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: KU68GJK
Driver: Eddy Xhele
Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104
Incoming Ref No: 637869
Site Name: FCC - BOW
Date: 12/12/2022
Time on Site: 13:04
Time off Site:
Customer Order Ref:

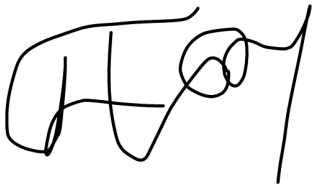
Product: NHMA

NON HAZ MUCK AWAY

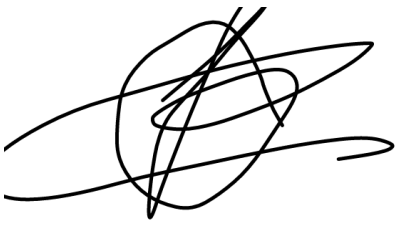
EWC: 170504

Unit Of Sale: LOAD
Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - BRETTS EH, RAINHAM

BRETTS - EAST HALL FARM
BRETT AGGREGATES LTD
EAST HALL FARM INERT LANDFILL
NEW ROAD, WENNINGTON
RM13 9DS

Waste Code:

Issued By:

Ticket No: 1100330064

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: EY20YMZ

Driver: Dumitru Minalache

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 642372

Site Name: BRETTS - EAST HALL FARM

Date: 15/12/2022

Time on Site: 12:23

Time off Site:

Customer Order Ref:

Product: SAS

SOIL AND STONE

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - TML ROMFORD

Thames Material Ltd, Central Park, Wood Lane,
Dagenham, RM8 1EG
Central Park, Wood Lane
RM8 1EG

Waste Code:

Issued By:

Ticket No: 1100330568

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GD22AYH

Driver: LEE MARSH

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 641292

Site Name: Thames Material Ltd,
Central Park, Wood Lane,
Dagenham, RM8 1EG

Date: 16/12/2022

Time on Site:

Time off Site:

Customer Order Ref:

Product: SAS

SOIL AND STONE

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - TML ROMFORD

Thames Material Ltd, Central Park, Wood Lane,
Dagenham, RM8 1EG
Central Park, Wood Lane
RM8 1EG

Waste Code:

Issued By:

Ticket No: 1100330574

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: KU69WZD

Driver: Juan Carlos Duarte Velandia

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 640934

Site Name: Thames Material Ltd, Central Park, Wood Lane, Dagenham, RM8 1EG

Date: 16/12/2022

Time on Site:

Time off Site:

Customer Order Ref:

Product: SAS

SOIL AND STONE

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - BRETTS EH, RAINHAM

BRETTS - EAST HALL FARM
BRETT AGGREGATES LTD
EAST HALL FARM INERT LANDFILL
NEW ROAD, WENNINGTON
RM13 9DS

Waste Code:

Issued By:

Ticket No: 1100337420

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: NJ22AUK

Driver: SILVIU DINU

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 624603

Site Name: BRETTS - EAST HALL FARM

Date: 20/01/2023

Time on Site:

Time off Site:

Customer Order Ref:

Product: SAS

SOIL AND STONE

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: RMS PERRY RD

RMS Perry Rd
Perry Rd
RM9 6LE

Waste Code:

Issued By:

Ticket No: 1100408789

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: EY20YMZ
Driver: Ciprian Demsa
Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104
Incoming Ref No: 643170
Site Name: RMS Perry Rd
Date: 23/10/2023
Time on Site: 09:33
Time off Site:
Customer Order Ref:

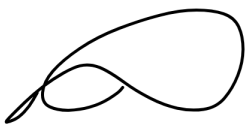
Product: BALLAST

BALLAST

EWC: 170504

Unit Of Sale: LOAD
Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - LAND AND WATER

Land and Water, Marshes Cold Harbour Lane
Marshes Cold Harbour Lane
RM13 9YQ

Waste Code:

Issued By:

Ticket No: 1100408794

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YXT

Driver: JAKE MITCHELL

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 636128

Site Name: Land and Water, Marshes Cold Harbour Lane

Date: 23/10/2023

Time on Site: 09:49

Time off Site:

Customer Order Ref:

Product: BALLAST

BALLAST

EWC: 170504

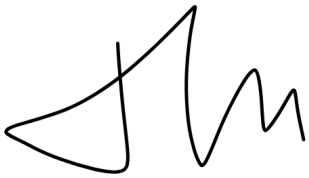
Unit Of Sale: LOAD

Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - BRETTS LL, RAINHAM

BRETTS RAINHAM - WASTE IN
LAUNDERS LANE
RAINHAM
RM13 9GF

Waste Code:

Issued By:

Ticket No: 1100413735

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GK73AAJ

Driver: Ciprian Demsa

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 667306

Site Name: BRETTS RAINHAM - WASTE IN

Date: 09/11/2023

Time on Site: 13:53

Time off Site:

Customer Order Ref:

Product: BALLAST

BALLAST

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - BRETTSQM

BRETTS - QUEEN MARY
QUEEN MARY RESERVOIR RECYCLING FACILITY
ASHFORD ROAD
LALEHAM
TW18 1QF

Waste Code:

Issued By:

Ticket No: 1100413740

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN73ZVP
Driver: MARTIN FITZSIMMONS
Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104
Incoming Ref No: 638974
Site Name: BRETTS - QUEEN MARY
Date: 09/11/2023
Time on Site:
Time off Site:
Customer Order Ref:

Product: BALLAST

BALLAST

EWC: 170504

Unit Of Sale: LOAD
Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: RMS PERRY RD

RMS Perry Rd
Perry Rd
RM9 6LE

Waste Code:

Issued By:

Ticket No: 1100413764

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: EY20YMZ
Driver: Lee Lindsay
Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104
Incoming Ref No: 643295
Site Name: RMS Perry Rd
Date: 09/11/2023
Time on Site: 16:11
Time off Site:
Customer Order Ref:

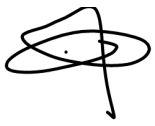
Product: BALLAST

BALLAST

EWC: 170504

Unit Of Sale: LOAD
Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - BRETTSQM

BRETTS - QUEEN MARY
QUEEN MARY RESERVOIR RECYCLING FACILITY
ASHFORD ROAD
LALEHAM
TW18 1QF

Waste Code:

Issued By:

Ticket No: 1100414427

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: KU69WZD
Driver: SHANE REDDY
Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104
Incoming Ref No: 633605
Site Name: BRETTS - QUEEN MARY
Date: 13/11/2023
Time on Site:
Time off Site:
Customer Order Ref:

Product: BALLAST

BALLAST

EWC: 170504

Unit Of Sale: LOAD
Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - GRSTYTT

GRS TARMAC TYTTENHANGER
LARFARGE AGGREGATES LIMITED
TYTTENHANGER LANDFILL
COURSERS ROAD
AL4 0PF

Waste Code:

Issued By:

Ticket No: 1100417262

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN73ZVO
Driver: CLAUDIU BOLOCAN
Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104
Incoming Ref No: 625224
Site Name: GRS TARMAC TYTTENHANGER
Date: 22/11/2023
Time on Site: 09:10
Time off Site:
Customer Order Ref:

Product: SAS

SOIL AND STONE

EWC: 170504

Unit Of Sale: LOAD
Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - BRETTS LL, RAINHAM

BRETTS RAINHAM - WASTE IN
LAUNDERS LANE
RAINHAM
RM13 9GF

Waste Code:

Issued By:

Ticket No: 1100422253

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GD23MHO

Driver: Dumitru Minalache

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 40112

Site Name: BRETTS RAINHAM - WASTE IN

Date: 12/12/2023

Time on Site: 15:44

Time off Site:

Customer Order Ref:

Product: BALLAST

BALLAST

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Customer Signature



Site Representative



Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: JRLSILVI

JRL Silver Town waste INCOMING
JRL ENVIRONMENTAL
KNIGHTS ROAD
SILVERTOWN
E16 2AT

Waste Code:

Issued By:

Ticket No: 1100434483

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YXP

Driver: Daniel Dalton

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 614579

Site Name: JRL Silver Town waste INCOMING

Date: 01/03/2024

Time on Site:

Time off Site:

Customer Order Ref:

Product: SAS

SOIL AND STONE

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - BRETTS EH, RAINHAM

BRETTS - EAST HALL FARM
BRETT AGGREGATES LTD
EAST HALL FARM INERT LANDFILL
NEW ROAD, WENNINGTON
RM13 9DS

Waste Code:

Issued By:

Ticket No: 1100434493

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YVS

Driver: Bogdan Buta

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 653606

Site Name: BRETTS - EAST HALL FARM

Date: 01/03/2024

Time on Site:

Time off Site:

Customer Order Ref:

Product: SAS

SOIL AND STONE

EWC: 170504

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

SKIP TICKET

Outlet Details: JRLSK
JRL Environmental Ltd

Ticket No: 1100470386

Type: WaitNLoad

Customer Account: JRL001
J REDDINGTON LTD

Site Address: 1219
20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12
SITE PREPARATION

Tip Outlet: 001 - SRC - BARKING
JRL Environmental Ltd
SEWELLS RESERVOIR CONSTRUCTION LTD
BARKING RIVERSIDE RECYCLING CENTRE
CHOATS ROAD
IG11 0YN

Waste Code: EPR/HB3109CX
Issued By: EA

Vehicle Reg: GN72ZMX
Driver:
Date: 08/10/2024
Time on Site:
Time off Site:
Customer Order Ref:

Product: GRAB
GRAB Load

Waste Type: SASG
SOIL AND STONE - GRAB

EWC: 170504

Net Weight: 15060.00

Company Details:
JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN
Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

SKIP TICKET

Outlet Details: JRLSK
JRL Environmental Ltd

Ticket No: 1100488068

Type: Exchange

Customer Account: JRE014
J REDDINGTON LTD

Site Address: 1219
20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12
SITE PREPARATION

Tip Outlet: 001 - SRC - BARKING
JRL Environmental Ltd
SEWELLS RESERVOIR CONSTRUCTION LTD
BARKING RIVERSIDE RECYCLING CENTRE
CHOATS ROAD
IG11 0YN

Waste Code: EPR/HB3109CX
Issued By: EA

Vehicle Reg: GN22ZHF
Driver: ADI CONTU
Date: 03/03/2025
Time on Site: 10:43
Time off Site: 10:43
Customer Order Ref:

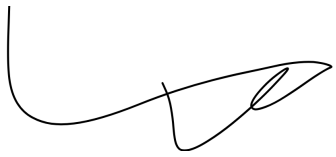
Product: 8YDO
8 Yard Open

Waste Type: SM
SCREENABLE MATERIAL

EWC: 170101

Net Weight: 7000.00

Customer Signature



Site Representative



Company Details:
JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN
Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

Appendix N
Consignment Notes.

© Terragen Environmental Consultants 2026

Waste Soil Movement Sheet

keltbray Environmental

Consignor's/Carrier's/Consignee's Copy (Delete as Appropriate)

Part A Notification details

1 Consignment note code: J R E D D I / F I 0 0 2

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):

J. Reddington Ltd.,
Tottenham Hale, Ferry Island, London, N17 9NU

4 The waste will be taken to (name, address and postcode):

Keltbray Environmental Ltd.,
Mohawk Wharf, Bradfield Road, Silvertown, London, E16 2AX

5 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):

Part B Description of the Waste

1 The process giving rise to the waste(s) was: Development of building projects 2 SIC for the process giving rise to the waste 4 1 . 1 0 . 0

3. Waste Details (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of Waste	List of wastes (EWC code) (6 digits)	Packing Group(s)	Quantity (KG)	The chemical/biological components of the waste and their concentrations are:	Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard Code
Contaminated Soil	170503		20,000	See Report: P450040, 18-80546	SOLID	HP7, HP14

Part C Carrier's details

(If more that one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

1. Carrier Name:
On behalf of of **JRL Environmental Ltd.,**
4 Elstree Way, Borehamwood, Herts, WD6 1RN

2. Carrier registration no./reason for exemption:
CBDU86520

3. Vehicle Registration No. (or mode of transport, if not road):
GO 22 AYJ

Signature

Date 13/10/2022 Time 0800
0920

Part D Consignor's details

I certify that the information in A, B and C above is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged ad labelled correctly and the carrier has been advised of any special handling requirements.
I confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the waste (England & Wales) regulations 2011

1. Consignor Name:
On behalf of **J. Reddington Ltd.,**
4 Elstree Way, Borehamwood, Herts, WD6 1RN

Signature

Date 13/10/22 Time 0940

Part E Consignee's details (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received (kg)	Quantity of each EWC code received (kg)	EWC Code accepted/rejected	Waste management operation (R or D code)
170503	12.100	accepted	R5

1. I received this waste at the address given in A4 on: Date 13/10/2022 Time 1001

2. Vehicle Registration No. (or mode of transport if not road):
GO22AYJ

3. Where waste is rejected please provide details:

I certify that waste management licence/permit/authorised exemption no(s).
EA/EPR/FP3092LH
authorises the management of the waste described in B at the address given in A4.

Name: T. Cervenec

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

Keltbray Environmental Ltd.,
St Andrews House, Portsmouth Road, Esher, Surrey, KT10 9TA

Signature

Date 13/10/2022 Time 1001

Waste Soil Movement Sheet

keltbray Environmental

Consignor's/Carrier's/Consignee's Copy (Delete as Appropriate)

Part A Notification details

1 Consignment note code: J R E D D I / F I [illegible] 3

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):

J. Reddington Ltd.,
Tottenham Hale, Ferry Island, London, N17 9NU

4 The waste will be taken to (name, address and postcode):

Keltbray Environmental Ltd.,
Mohawk Wharf, Bradfield Road, Silvertown, London, E16 2AX

5 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):

Part B Description of the Waste

1 The process giving rise to the waste(s) was: Development of building projects 2 SIC for the process giving rise to the waste 41.10.0

3. Waste Details (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of Waste	List of wastes (EWC code) (6 digits)	Packing Group(s)	Quantity (KG)	The chemical/biological components of the waste and their concentrations are:	Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard Code
Contaminated Soil	170503		20,000	See Report: P450040, 18-80546	SOLID	HP7, HP14

Part C Carrier's details

(If more that one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

1. Carrier Name:
On behalf of of **JRL Environmental Ltd.,**
4 Elstree Way, Borehamwood, Herts, WD6 1RN

2. Carrier registration no./reason for exemption:
CBDU86520

3. Vehicle Registration No. (or mode of transport, if not road):
LD 22 AYF

Signature [signature]
Date 13/10/2022 Time 1100

Part D Consignor's details

I certify that the information in A, B and C above is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged ad labelled correctly and the carrier has been advised of any special handling requirements.
I confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the waste (England & Wales) regulations 2011

1. Consignor Name:
On behalf of **J. Reddington Ltd.,**
4 Elstree Way, Borehamwood, Herts, WD6 1RN

Signature
Date 13/10/2022 Time 1140

Part E Consignee's details (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received (kg)	Quantity of each EWC code received (kg)	EWC Code accepted/rejected	Waste management operation (R or D code)
170503	18380	accepted	R5

1. I received this waste at the address given in A4 on: Date 13/10/2022 Time 1210

2. Vehicle Registration No. (or mode of transport if not road):
LD22 AYF

3. Where waste is rejected please provide details:

I certify that waste management licence/permit/authorised exemption no(s).
EA/EPR/FP3092LH
authorises the management of the waste described in B at the address given in A4.

Name: [illegible]
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Keltbray Environmental Ltd.,
St Andrews House, Portsmouth Road, Esher, Surrey, KT10 9TA

Signature [signature]
Date 13/10/2022 Time 1210

Appendix O
Environmental Permits (Disposal Facilities).

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Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Sewells Reservoir Construction Limited

Barking Riverside Recycling Centre
Choats Road
Barking
Essex
RM9 6RJ

Permit number

EPR/HB3109CX

Barking Riverside Recycling Centre
Permit number EPR/HB3109CX

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

This permit allows for the reception, transfer, storage and processing of non-hazardous and inert waste for recovery. Material is transported to site, weighed and tipped into the sorting area prior to being sorted and graded and moved to the relevant storage area. Treatment activities include sorting, separating, screening, crushing and blending into different components for recovery of wastes. The annual tonnage throughput will not exceed 500,000 tonnes of waste.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/HB3109CX/A001	Duly made 26/03/2019	Application for physical treatment facility.
Additional information received	16/09/2019	Schedule 5 response with approved Dust and Emissions Management Plan and answers to GWCL questions.
Permit determined EPR/HB3109CX	02/10/2019	Permit issued to Sewells Reservoir Construction Limited.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/HB3109CX

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

Sewells Reservoir Construction Limited ("the operator"),

whose registered office is

Lodge B Highwood Quarry
Little Canfield
Great Dummow
Essex
CM6 1SL

company registration number **02349942**

to operate waste operations at

Barking Riverside Recycling Centre
Choats Road
Barking
Essex
RM9 6RJ

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Derek Franklin	**02/10/2019**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Avoidance, recovery and disposal of wastes produced by the activities

1.2.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.2.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.1; and

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions of substances not controlled by emission limits

3.1.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.1.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2 Odour

3.2.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour. .

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.3 Noise and vibration

3.3.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Monitoring

3.4.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) ambient air monitoring specified in table S3.7;

3.4.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.3 Notifications

4.3.1 The Environment Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made “without delay”, in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities	
Description of activities for waste operations	**Limits of activities**
R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes) R5: Recycling/reclamation of other inorganic materials R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where the waste is produced) D9: Physico-chemical treatment not specified elsewhere which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12 D14: Repackaging prior to submission to any of the operations numbered D1 to D13 D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced)	Treatment of wastes listed in Table S2.1 consisting only of sorting, separation, screening and crushing of waste for disposal (no more than 50 tonnes per day) and for recovery as a soil, soil substitute or aggregate. Subject to any other requirements of this permit wastes shall be stored for no longer than 1 year prior to disposal or 3 years prior to recovery. The capacity of the site for non hazardous waste subject to an R3 activity (Biological treatment only) shall not exceed 75 tonnes per day. No more than 50 tonnes per day of non hazardous waste to be treated at the site under a D9 activity.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Response to Schedule 5 Notices dated 28/05/2019, 11/07/2019 and 28/08/2019	**Approved Dust and Emissions Management Plan consisting of the following documents:** SRCL-CR-DMP-01 Dust & Emission Management Plan EMS-OP-02, Version 4	03/09/2019 16/09/2019

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP1	The operator shall submit a written report to the Environment Agency for approval. The report shall contain a review of the results of the particulate/dust monitoring specified in the permit and the effectiveness of the site's particulate/dust monitoring strategy. The report shall include further measures to be undertaken to reduce particulate emissions at the facility, if necessary and dates for implementation. The actions and outcomes of the report shall be implemented by the operator from the date of approval in writing by the Environment Agency subject to any such amendments or additions as notified by the Environment Agency.	To be completed 12 months from permit issue

Schedule 2 – Waste types

Table S2.1 Permitted waste types and quantities for Physical Treatment of Non-Hazardous Waste	
Exclusions **Wastes having any of the following characteristics shall not be accepted:** • **Consisting solely or mainly of dusts, powders or loose fibres** • **Hazardous wastes** • **Wastes in liquid form**	
Maximum quantity	**The total quantity of waste accepted at the site for the above activity shall be less than 500,000 tonnes a year.**
Waste code	**Description**
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	**wood, glass and plastic**
17 02 02	glass
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 08	track ballast other than those mentioned in 17 05 07
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 02	**garden and park wastes (including cemetery waste)**
20 02 02	Soil and stones

Schedule 3 – Emissions and monitoring

Table S3.7 Ambient air monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
In accordance with the Dust and Emissions management plan (Version 4, September 2019) section 4 or as agreed in writing with the Environment Agency.	Particulate matter PM_{10}	Continuous	In accordance with the Dust and Emissions management plan (Version 4, September 2019) section 4 or as agreed in writing with the Environment Agency.	---

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Ambient air monitoring Parameters as required by condition 3.4.1	As specified in schedule 3 table S3.7	[note 1]	[note 1]
Note 1 – An annual review must be carried out 12 months after the date the permit was issued. The results of the annual review shall be submitted to the Environment Agency. Any changes or improvements to the ambient monitoring shall be approved by the Environment Agency and shall be implemented by the operator from the date of approval in writing by the Environment Agency.			

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

"accident" means an accident that may result in pollution.

"Annex I" means Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"Annex II" means Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"authorised officer" means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

"building" means a construction that has the objective of providing sheltering cover and minimising emissions of noise, particulate matter, odour and litter.

"D" means a disposal operation provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"Hazardous waste" has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 (as amended).

"List of Wastes" means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

"PM_{10}" Suspended particles of diameter up to 10 µm

"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"R" means a recovery operation provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"Waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

"Waste Framework Directive" or "WFD" means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

"year" means calendar year ending 31 December.

When the following terms appear in the waste code list in Schedule 2, table S2.1 for that table they have the meaning given below:

"hazardous substance" means a substance classified as hazardous as a consequence of fulfilling the criteria laid down in parts 2 to 5 of Annex I to Regulation (EC) No 1272/2008.

“heavy metal” means any compound of antimony, arsenic, cadmium, chromium (VI), copper, lead, mercury, nickel, selenium, tellurium, thallium and tin, as well as these materials in metallic form, as far as these are classified as hazardous substances.

“PCBs” means

- polychlorinated biphenyls
- polychlorinated terphenyls
- monomethyl-tetrachlorodiphenyl methane, Monomethyl-dichloro-diphenyl methane, Monomethyldibromo-diphenyl methane
- any mixture containing any of the above mentioned substances in a total of more than 0,005 %by weight.

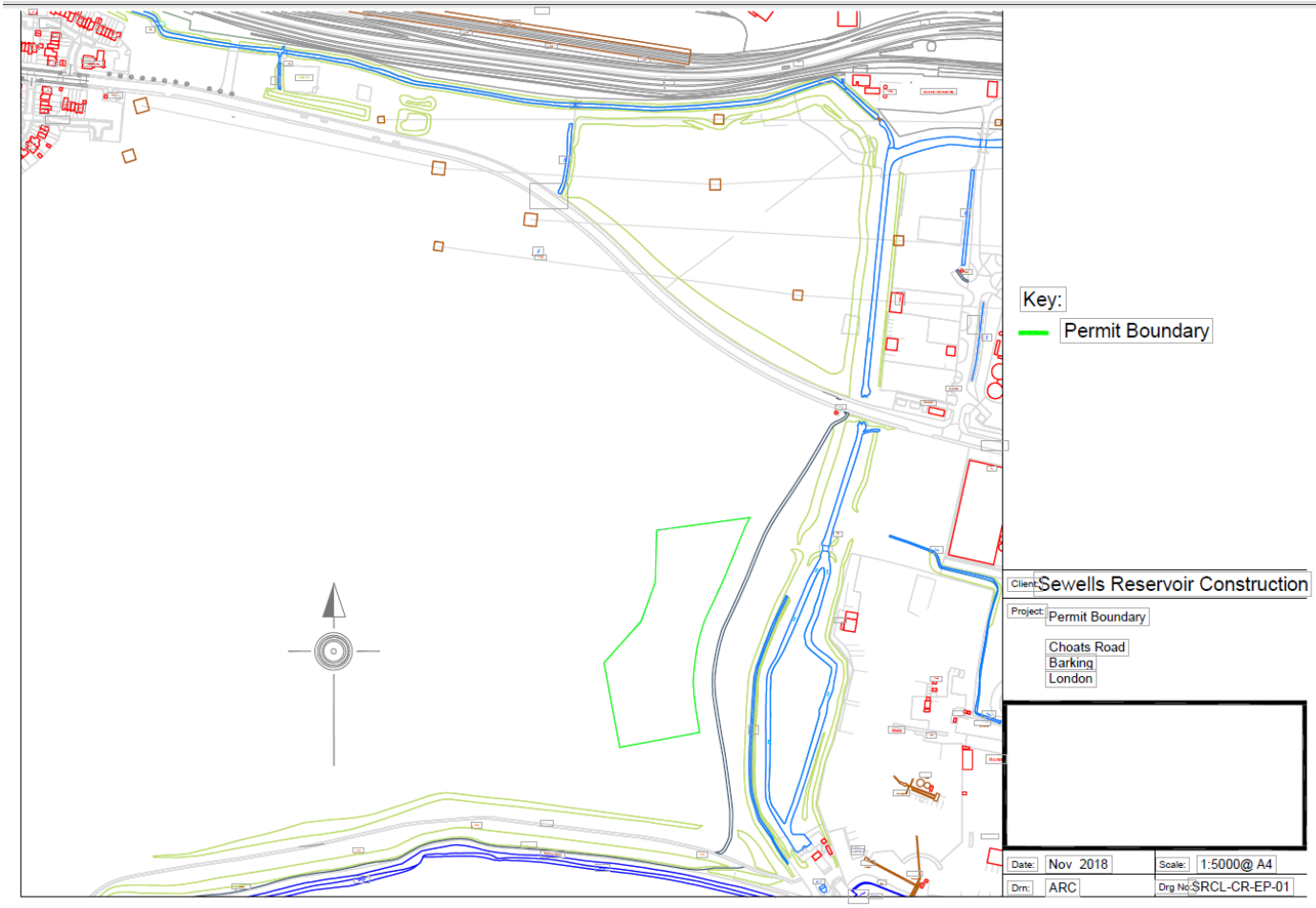
“transition metals” means any of the following metals: any compound of scandium, vanadium, manganese, cobalt, copper, yttrium, niobium, hafnium, tungsten, titanium, chromium, iron, nickel, zinc, zirconium, molybdenum and tantalum, as well as these materials in metallic form, as far as these are classified as hazardous substances.

“stabilisation” means processes which change the hazardousness of the constituents in the waste and transform hazardous waste into non-hazardous waste.

“solidification” means processes which only change the physical state of the waste by using additives without changing the chemical properties of the waste.

“partly stabilised wastes” means wastes containing, after the stabilisation process, hazardous constituents which have not been changed completely into non-hazardous constituents and could be released into the environment in the short, middle or long term.

Schedule 7 – Site plan



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END OF PERMIT

creating a better place

Environment Agency

The Company Director and/or Secretary
Hanson Quarry Products Europe Limited
Hanson House
14 Castle Hill
Maidenhead
SL6 4JJ

Our ref: EPR/BB3005TG/A001

Date: 10 March 2015

Dear Sir and/or Madam,

Your new environmental permit

Permit reference: EPR/BB3005TG/A001
Waste returns reference: EAWML 401033
Operator: Hanson Quarry Products Europe Limited
Facility: Dagenham Dock Aggregate Recycling Facility, Land On Breach Lane, Dagenham, London, RM9 6QD

Our determination of your application for a permit is complete. We're satisfied that you can carry out your activities in accordance with the enclosed permit, without harm to the environment or human health. Please keep the permit in a safe place.

This letter contains web links to other documents. If you aren't able to access these phone our Customer Contact Centre for help on 03708 506 506.

Please look at the table below and note any of the things that apply to your permit.

If...	then..
you plan to keep your records at a site other than where the activity takes place	you need to let us know within 20 working days of receiving this letter.
your permit includes pre-operational or improvement conditions	check the deadlines for completing measures and make sure you carry them out by the times stated.
your permit includes standard rules	we've enclosed the rules set/s. We may change these in future but will let you know about any changes. You must make sure you're always following the latest rules set.
you're carrying out a waste operation or activity and need to submit quarterly waste returns on waste movements **Note:** This does not apply to permits that only have stand alone water discharge or groundwater activities.	you can get the forms you need from our website https://www.gov.uk/government/collections/national-operator-waste-returns When you complete your return use the waste returns reference above.
your permit includes an installation	we enclose a legal notice and information about reporting to the Pollution Inventory.
you need to submit other returns	send these to your area office. Speak to your area officer to check local arrangements.

Land Team, Permitting and Support Centre, Quadrant 2, 99 Parkway Avenue, Sheffield, S9 4WF
Phone: 03708 506 506
Email: enquiries@environment-agency.gov.uk
www.gov.uk/environment-agency

INVESTOR IN PEOPLE

You need to read our document **How to comply with your environmental permit** as this will help you understand how to meet the conditions of the permit. You can find this on our website at https://www.gov.uk/government/publications/how-to-comply-with-your-environmental-permit

A local regulatory officer will visit you to assess compliance with your permit conditions.

There is an annual subsistence charge for your permit unless:

- your permit is only for discharges of sewage effluent where the maximum daily volume of discharge permitted is five cubic metres or less (this does not apply to trade effluent or any other type of discharge)
- or your permit is only for mobile plant, instead we will charge for each deployment.

The annual charge is due on demand in the year that we issue the permit and then on 1 April each year. The charge starts from the date we authorise the permit, unless there's a condition relating to a standalone water discharge which states a later start date. In that case we will charge for the discharge from the start date. If you need to know more about the subsistence charge please look at the charging guidance on our website at https://www.gov.uk/government/publications/environmental-permitting-ep-charges-scheme-april-2014-to-march-2015

Rights of appeal

If you're not happy with any permit condition that has been imposed by the permit you may appeal to the Secretary of State. You must make your appeal no later than six months after the permit issue date. Further information about making an appeal and the forms you will need are available from the Planning Inspectorate website or from the contact details below.

Environment Appeals, Enforcement and Specialist case work division, The Planning Inspectorate, 3/25 Hawk Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN. Phone: 0303 444 5584

Email: environment.appeals@pins.gsi.gov.uk

You must send written notice of the appeal and the documents listed below to the Secretary of State at the Planning Inspectorate address above. At the same time you must send us a copy of the notice and documents to

Victoria Balmer, Appeals Coordinator, Environment Agency, National Permitting Service, Knutsford Road, Latchford, Warrington, WA4 1HG.

Phone: 01925 542456 Email : victoria.balmer@environment-agency.gov.uk

The documents are:

- a statement of the grounds of appeal
- a copy of any relevant application
- a copy of any relevant environmental permit
- a copy of any relevant correspondence between the appellant and the regulator
- a copy of any decision or notice which is the subject matter of the appeal
- a statement indicating whether you wish the appeal to be in the form of a hearing or dealt with by way of written representations.

You may withdraw an appeal by notifying the Secretary of State in writing and sending a copy of that notification to us.

If you have any questions about this permit please phone our Customer Contact Centre on 03708 506 506. They will put you in touch with a local regulatory officer.

Yours faithfully

Heather Carter
Permit Support Advisor

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Hanson Quarry Products Europe Limited

Dagenham Dock Aggregate Recycling Facility
Land on Breach Lane
Dagenham Dock
Dagenham
London
RM9 6QD

Permit number

EPR/BB3005TG

Dagenham Dock Aggregate Recycling Facility
Permit number EPR/BB3005TG

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

The site is located within industrial surroundings in the London Borough of Dagenham and Barking, approximately 315m north of the River Thames. The permit allows the facility to accept and physically treat and store non-hazardous wastes for recovery purposes. The annual throughput of the site is less than 250,000 tonnes.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/BB3005TG/A001	Duly made 08/12/2014	Application for an Aggregate Recycling Facility.
Schedule 5 notice issued	28/01/2015	Schedule 5 issued
Additional information received	09/02/2015	Responses to schedule 5 notice
Permit determined EPR/BB3005TG	09/03/2015	Permit issued to Hanson Quarry Products Europe Limited.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number

EPR/BB3005TG

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

Hanson Quarry Products Europe Limited ("the operator"),

whose registered office is

Hanson House
14 Castle Hill
Maidenhead
SL6 4JJ

company registration number 00300002

to operate a waste operation at

Dagenham Dock Aggregate Recycling Facility
Land on Breach Lane
Dagenham Dock
Dagenham
London
RM9 6QD

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Helen Rowlands	09/03/2015

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Avoidance, recovery and disposal of wastes produced by the activities

1.2.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.2.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.1; and

(b) it conforms to the description in the documentation supplied by the producer and holder.

3 Emissions and monitoring

3.1 Emissions of substances not controlled by emission limits

3.1.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.1.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2 Odour

3.2.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.3 Noise and vibration

3.3.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period

specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Pests

3.4.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.

3.4.2 The operator shall:

(a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution, hazard or annoyance from pests;

(b) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

4.3.1 The Environment Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities	
Description of activities for waste operations	**Limits of activities**
R5: Recycling/reclamation of other inorganic materials R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where the waste is produced)	Physical treatment including manual and mechanical sorting/ separation, crushing and screening of non-hazardous waste for recovery. Wastes shall be stored for no longer than 3 years prior to recovery.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	'How to Comply' – technical standards, Part B4, question 3a of the application form.	08/12/2014

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Permitted waste types and quantities for waste storage and physical treatment.	
Maximum quantity	**The total quantity of waste accepted at the site shall be less than 250,000 tonnes a year.**
Exclusion **Wastes having any of the following characteristics shall not be accepted:** • **Consisting solely or mainly of dust, powders or loose fibres** • **Wastes that are in a form which is either sludge or liquid**	
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 01	**wastes from mineral excavation**
01 01 02	wastes from mineral non-metalliferous excavation
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
10	**Wastes from thermal processes**
10 11	**wastes from manufacture of glass and glass products**
10 11 12	waste glass other than those mentioned in 10 11 11
10 12	**wastes from manufacture of ceramic goods, bricks, tiles and construction products**
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10 13	**wastes from manufacture of cement, lime and plaster and articles and products made from them**
10 13 14	waste concrete and concrete sludge
15	**Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 07	glass packaging
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	**wood, glass and plastic**
17 02 02	glass
17 03	**bituminous mixtures, coal tar and tarred products**

Table S2.1 Permitted waste types and quantities for waste storage and physical treatment.	
Maximum quantity	**The total quantity of waste accepted at the site shall be less than 250,000 tonnes a year.**
Exclusion **Wastes having any of the following characteristics shall not be accepted:** • **Consisting solely or mainly of dust, powders or loose fibres** • **Wastes that are in a form which is either sludge or liquid**	
Waste code	**Description**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 05	glass
19 12 09	minerals (for example sand, stones)
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 02	glass
20 02	**garden and park wastes (including cemetery waste)**
20 02 02	soil and stones

Schedule 3 – Emissions and monitoring

There are no emission limits or associated monitoring requirements.

Schedule 4 – Reporting

There is no reporting under this schedule.

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

"accident" means an accident that may result in pollution.

"Annex I" means Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"Annex II" means Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"authorised officer" means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"pests" means Birds, Vermin and Insects.

"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

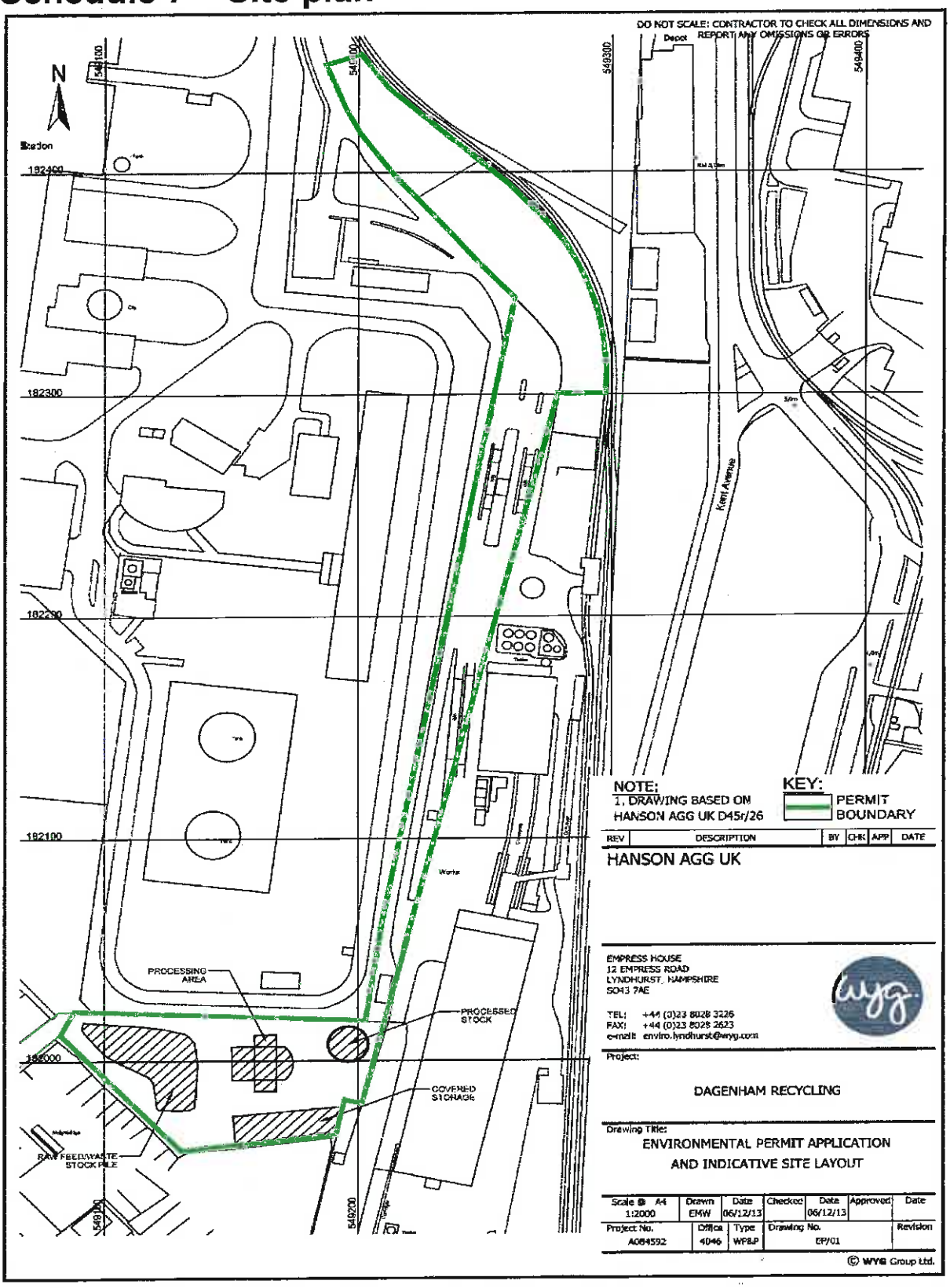
"R" means a recovery operation provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"Waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes (England)Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

"Waste Framework Directive" or "WFD" means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

"year" means calendar year ending 31 December.

Schedule 7 – Site plan



END OF PERMIT

Notice of variation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Brett Aggregates Limited

East Hall Farm
New Road
Wennington
Rainham
Essex
RM13 9DS

Variation application number

EPR/EB3201HA/V002

Permit number

EPR/EB3201HA

East Hall Farm
Permit number EPR/EB3201HA

Introductory note

This introductory note does not form a part of the notice

The following notice gives notice of the variation of an environmental permit.

This variation notice amends the waste codes that can be accepted on site; several waste codes have been removed from the list of permitted wastes to align with the waste types detailed within 'The Landfill Tax (Qualifying Material) Order 2011'. Table S2.1 has also been amended to include an additional restriction/notes that states all waste accepted must be listed within the Landfill Tax (Qualifying Materials) Order 2011 at the request of the operator.

The schedules specify the changes made to the original permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/EB2301HA/A001	Duly made 03/05/2017	Application for inert landfill, soil treatment facility and use of waste for restoration with discharge to surface water.
Additional information received	19/09/2017	Submission of schedule 5 response letter v6 Final to EA; Dust Action Plan; Drawing 007 – Environmental Monitoring, dated September 2017; Drawing 010A – Local Hydrogeology and Hydrology, dated September 2017; Drawing 010B - 'Hydrogeological Cross Section A-A', dated September 2017; Drawing 010C – 'Hydrogeological Cross Section B-B', dated September 2017; Drawing Groundwater Quality graph; Notice of Decision for discharge of condition C13 (Operations method statement) and C20 (Dust control) of Planning Permission no. P0271.14, and Noise modelling study spreadsheet. Further information relating to the discharge and designated sites, species and the impact upon the watercourse.
Additional information received	13/10/2017	Submission of LandSim modelling files and modelling results; Further information to noise modelling co-ordinates and boundary drawing.
Additional information received	11/01/2017	Submission of Hydrological Risk Assessment.
Additional information received	12/01/2018	Submission of letter response, site layout drawing 004.
Additional information received	20/02/2018	Submission of Dust Management Plan v2 final;

Status log of the permit		
Description	**Date**	**Comments**
		Updated expenditure plan and Appendix F – Waste Acceptance Criteria.
Additional information received	08/03/2018	Submission of SoundPlan data files.
Additional information received	16/03/2018	Submission of updated Drawing 007 ‘Environmental monitoring’ plan.
Additional information received	04/05/2018	Submission of confirmation of total quantity of waste imported for the engineering of the geological barrier.
Additional information received	13/06/2018	Submission of email response and attached documents: Hydrological Assessment of Proposed Discharge including Appendix HA1, HA2. HA3 and HA4 dated June 2018.
Additional information received	18/06/2018	Submission of BS4142 Noise assessment report and Noise Management Plan.
Additional information received	19/07/2018	Submission of EHF08 borehole log and EHF 02 B - Borehole Location Plan.
Additional information received	02/08/2018	Submission of updated Drawing 007 ‘Environmental monitoring’ plan.
Permit determined EPR/EB3201HA	08/08/2018	Permit issued to Brett Aggregates Limited.
Application EPR/EB3201HA/V002 (variation)	Duly made 11/11/2019	Application to remove waste codes.
Variation determined EPR/EB3201HA	02/01/2020	Varied permit issued.

End of introductory note

Notice of variation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/EB3201HA

Issued to

Brett Aggregates Limited ("the operator")

whose registered office is

150 Aldersgate Street
London
EC1A 4AB

company registration number 00316788

to operate a regulated facility at

East Hall Farm
New Road
Wennington
Rainham
Essex
RM13 9DS

to the extent set out in the schedules.

The notice shall take effect from 02/01/2020

Name	Date
Tracey Pollard	**02/01/2020**

Authorised on behalf of the Environment Agency

Schedule 1 – conditions to be deleted

None

Schedule 2 – conditions to be amended

The following conditions are amended as a result of the application made by the operator.

Table S2.1 as referenced in condition 2.7.1(a) is amended as follows:

Table S2.1 Permitted waste types for disposal at a landfill for inert waste	
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07[1]
01 04 09	waste sand and clays[1]
01 04 12	tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11[1]
17	**Construction and demolition wastes (excluding excavated soil from contaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete [1] [2]
17 01 02	bricks [1] [2]
17 01 03	tiles and ceramics [1] [2]
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06 [1] [2]
17 05	**soil, stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03 (excluding topsoil and peat) [1] [3]
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 02	**garden and park wastes (including cemetery waste)**
20 02 02	soil and stones (excluding topsoil and peat) [1] [3]

Note [1] – All wastes received must be listed in the Landfill Tax (Qualifying Materials) Order 2011.

Note [2] – Selected construction and demolition waste (C&D waste: with low contents of other types of materials like metals, plastic, organics, wood, rubber etc.). The origin of the C&D waste must be known.

No C&D waste from constructions, polluted with inorganic or organic dangerous substances, e.g. because of production processes in the construction, soil pollution, storage and usage of pesticides or other dangerous substances, etc., unless it is made clear that the demolished construction was not significantly polluted.

No C&D waste from constructions, treated, covered or painted with materials, containing dangerous substances in significant amounts.

Note [3] –Soil includes naturally occurring sands and clays

Schedule 3 – conditions to be added

None.

Permit

The Environmental Permitting (England & Wales) Regulations 2016

JRL Environmental Limited

JRL Environmental
Knights Road
Silvertown
London
E16 2AT

Permit number

EPR/WE4202AA

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/WE4202AA

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

JRL Environmental Limited ("the operator"),

whose registered office is

4 Elstree Way
Borehamwood
Hertfordshire
WD6 1RN

registration number **08809475**

to operate waste operations described in standard rules **2010 No12** at

JRL Environmental
Knights Road
Silvertown
London
E16 2AT

to the extent authorised by and subject to the conditions of this permit.

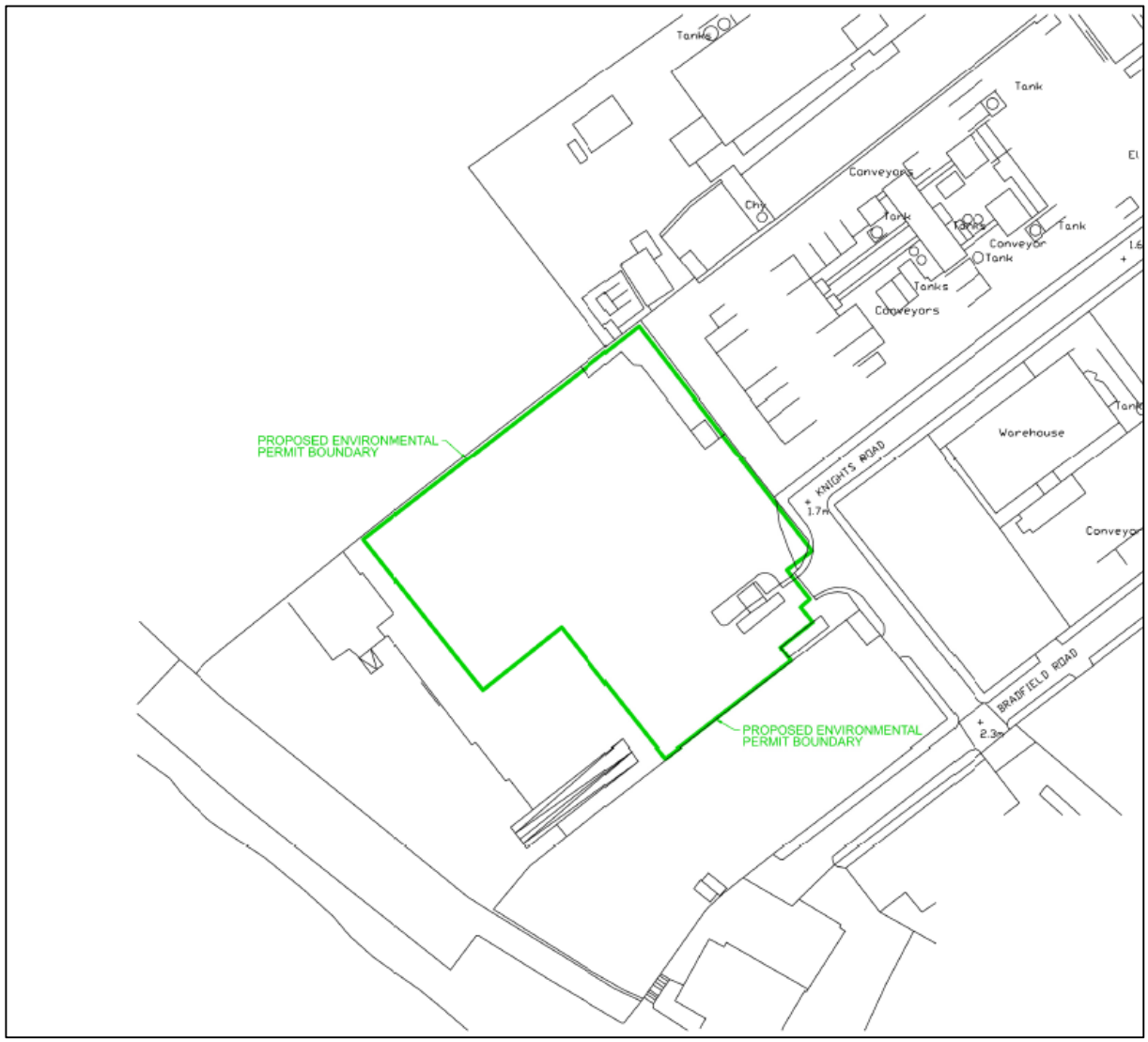
Under regulation 27(2) of the Regulations, standard rules **2010 No12** are conditions of this permit.

Name	**Date**
Grant Wilson	**09/07/2019**

Authorised on behalf of the Environment Agency

Schedule 1 – Site plan

This is the plan referred to in the standard rules 2010 No12



Variation notice with introductory note

Environmental Permitting (England & Wales) Regulations 2010

Marshgate Sidings

DB Schenker Rail (UK) Limited
Marshgate Sidings
Pudding Mill Lane
Bow
London
E15 2PJ

Variation notice number
EPR/BP3698EQ/V002

Permit number
EPR/BP3698EQ

Marshgate Sidings
Permit number EPR/BP3698EQ

Introductory note

This introductory note does not form a part of the permit

The following notice, which is issued pursuant to regulation 20 and Part 1 of Schedule 5 of the Environmental Permitting (England and Wales) Regulations 2010 S.I.2010 No. 675 (the Regulations), gives notice of the variation of an environmental permit to operate a regulated facility.

This variation is to lift the restriction on the source of waste accepted at the site from that stipulated in the original permit. It also increases the tonnages that the site can store, its annual throughput as well increasing the types of waste the site can accept. It confirms that the site is now operated by DB Schenker Rail (UK) Limited which has the same registration number as the previous company and therefore does not require the permit to be transferred.

Schedule 1 of this notice lists any deleted conditions, Schedule 2 lists any amended conditions, Schedule 3 lists any conditions that have been added and Schedule 4 shows any changes to the plan.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status Log of the permit		
Detail	Date	Response Date
Permit determined EAWML 100245	14/02/08	
Application EPR/BP3698EQ/V002	Duly made 11/06/10	
Variation issued	16/08/10	

End of Introductory Note

Notice of variation

Environmental Permitting
(England and Wales) Regulations 2010

Permit number
EPR/BP3698EQ

The Environment Agency in exercise of its powers under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 (SI 2010 No 675) varies the permit as set out below.

DB Schenker Rail (UK) Limited ("the operator"),

whose registered office is

Lakeside Business Park
Carolina Way
Doncaster
South Yorkshire
DN4 5PN

company registration number 02938988

holds a permit to operate *a regulated facility* at
Marshgate Sidings
Pudding Mill Lane
Bow
London
E15 2PJ

and that permit is varied to the extent set out in Schedules 1 to 4 of this notice.

The notice shall take effect from 16 August 2010

Name: Helen Smith	Date
	16 August 2010

Authorised on behalf of the Environment Agency

Schedule 1 – conditions to be deleted

The following conditions are deleted

2.2.1 (c).

Schedule 2 – conditions to be amended

The following conditions are amended as follows

Schedule 2 - Operations

Table 2.1 Licensed activities	
Description of activities	**Limits of activities**
D15: Storage of waste pending any of the operations listed in paragraphs 1 to 14 of this Part of this Schedule, but excluding temporary storage, pending collection, on the site where the waste is produced. **R13**: Storage of waste pending any of the operations in paragraphs 1 to 12 of this Part of this Schedule, but excluding temporary storage, pending collection, on the site where it is produced. **D14**: Repacking of waste prior to the waste being submitted to any of the operations listed in paragraphs 1 to 13 of this Part of the Schedule.	Non-hazardous and Inert wastes as listed in Table 2.2 shall be kept on an impermeable surface with sealed drainage No more than 50,000 tonnes of waste shall be stored at the site at any one time. The maximum height that waste may be stored is 5 metres.

Table 2.2 Licensed waste types and quantities

Maximum Quantities

The quantity of wastes listed below, accepted at the site shall be less than 700,000 tonnes a year.

Exclusions

Notwithstanding the specification of waste types below, wastes shall not be accepted at the site which have any of the following characteristics:

- Consisting solely or mainly of dusts, powders or loose fibres
- Wastes that are in a form of which is either sludge or liquid

Waste Code	Description
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	packaging (including separately collected municipal packaging waste)
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging
15 01 09	textile packaging
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 01	concrete, bricks, tiles and ceramics
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	wood, glass and plastic
17 02 01	wood
17 02 02	glass
17 02 03	plastic

Table 2.2 Licensed waste types and quantities	
17 03	bituminous mixtures, coal tar and tarred products
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 04	metals (including their alloys)
17 04 01	copper, bronze, brass
17 04 02	aluminium
17 04 03	lead
17 04 04	zinc
17 04 05	iron and steel
17 04 06	tin
17 04 07	mixed metals
17 04 11	cables other than those mentioned in 17 04 10
17 05	soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast other than those mentioned in 17 05 07
17 08	gypsum-based construction material
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01
17 09	other construction and demolition wastes
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE
19 01	wastes from incineration or pyrolysis of waste
19 01 02	ferrous materials removed from bottom ash
19 01 12	bottom ash and slag other than those mentioned in 19 01 11
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17
19 01 19	sands from fluidised beds
19 08	wastes from waste water treatment plants not otherwise specified
19 08 01	screenings
19 08 02	waste from desanding
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 01	paper and cardboard
19 12 02	ferrous metal

Table 2.2 Licensed waste types and quantities	
19 12 03	non-ferrous metal
19 12 04	plastic and rubber
19 12 05	glass
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 09	minerals (for example sand, stones)
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
19 13	wastes from soil and groundwater remediation
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	separately collected fractions (except 15 01)
20 01 01	paper and cardboard
20 01 02	glass
20 01 10	clothes
20 01 11	textiles
20 01 28	paints, inks, adhesives and resins other than those mentioned in 20 01 27
20 01 34	batteries and accumulators other than those mentioned in 20 01 33
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 01 40	metals
20 02	garden and park wastes (including cemetery waste)
20 02 02	soil and stones
20 02 03	other non-biodegradable wastes

Schedule 3 – conditions to be added

None.

Schedule 4 – amended plan

None.

BETA This is a trial service – your feedback (mailto:enquiries@environment-agency.gov.uk) will help us to improve it.

Permit DB3502TZ/V002 – Recycled Material Supplies Limited

Permit number	DB3502TZ/V002
Waste Management Licence No.	402833
Licence Holder Name	Recycled Material Supplies Limited

Site

Site name	Perry Road Recycling Facility
Site type	A16 : Physical Treatment Facility
Site Address	Perry Road Recycling Facility, Perry Road, Off Chequers Lane, Dagenham, Essex, RM9 6QD
Site Postcode	RM9 6QD (http://data.ordnancesurvey.co.uk/id/postcodeunit/RM96QD)
Site Grid Reference	TQ4912581891
Easting	549125
Northing	181891
Local Authority	Barking and Dagenham (http://www.lbbd.gov.uk/)

Status

Status Description	Modified
Issued Date	31/03/2016
Variation Date	17/01/2019

Request documents (mailto:dutyofcare@environment-agency.gov.uk?subject=Request for WO documents: DB3502TZ/V002&body=I would like to request documents per

Back

Support

Submit feedback or ask for support (https://support.environment.data.gov.uk/hc/en-gb/requests/new)

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Dagenham EA Permit

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Recycled Material Supplies Limited

Perry Road Recycling Facility

Perry Road
Off Chequers Lane
Dagenham
London
RM9 6QD

Permit number

EPR/DB3502TZ

Perry Road Recycling Facility
Permit number EPR/DB3502TZ

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

This permit is for an aggregate recycling facility at Perry Road in Dagenham, operated by Recycled Materials Supplies Limited. 250,000 tonnes of general construction, demolition and excavation waste will be processed a year and this will include secondary aggregates and these quantities necessitate a bespoke permit. Operations on site will be consistent with those set out in Standard Rules SR2010No12: Treatment of waste to produce soil, soil substitutes and aggregate. These inert wastes will be processed and stored on site while any residual wastes not for recycling will be stored ready for transfer off site for recovery or disposal.

The site is located near Perry Road in southern Dagenham Dock, in Dagenham on the Thames River (see site plan). The location is in a an industrial area containing businesses that undertake similar activities with the closest residential properties to the site being located across the River Thames in Thamesmead approximately 1.1m to the south west of the site. To the north east of the site the nearest residential properties are location 1.4km away in Oval Road and 1.6 km to the north west in Shaw Gardens.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/DB3502TZ/A001	Duly made 14/12/2015	Application for inert waste transfer station with treatment
Schedule 5 response	26/02/2016	Revised dust management plan received
Additional information	16/03/2016	Confirmation that permitted activities will not commence until dust management and drainage plans are approved by Area Team.
Permit determined EPR/DB3502TZ	31/03/2016	Permit issued to Recycled Material Supplies Limited.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number

EPR/DB3502TZ

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

Recycled Material Supplies Limited ("the operator"),

whose registered office is

Bank Chambers
Canterbury Road
Lyminge
Folkestone
Kent
CT18 8HU

company registration number **06221599**

to operate waste operations at

Perry Road Recycling Facility
Perry Road
Off Chequers Lane
Dagenham
London
RM9 6QD

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Neda Kayyali	31/03/2016

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme

1.2 Avoidance, recovery and disposal of wastes produced by the activities

1.2.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.2.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 For the following activities referenced in schedule 1, table S1.1 the activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.1

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.4 Pre-operational conditions

2.4.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.3 have been completed.

3 Emissions and monitoring

3.1 Emissions of substances not controlled by emission limits

3.1.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.1.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2 Odour

3.2.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.3 Noise and vibration

3.3.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the

operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Monitoring

3.4.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) ambient air monitoring specified in table S3.1;

3.5 Fire prevention

3.5.1 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to a risk of fire, submit to the Environment Agency for approval within the period specified, a fire prevention plan which prevents fires and minimises the risk of pollution from fires;

(b) implement the fire prevention plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.3 Notifications

4.3.1 The Environment Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 3.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities		
Activity reference	**Description of activities for waste operations**	**Limits of activities**
A16 Physical Treatment Facility	R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where the waste is produced) R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes) R5: Recycling/reclamation of other inorganic materials R12: Exchange of wastes for submission to any of the operations numbered R1 to R11	Treatment consisting only of sorting, separation, screening, crushing or blending of waste into different components for recovery. Secure storage of wastes listed in table 2.1 pending treatment. No more that 250,000 tonnes of waste shall be treated in any one year

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Response to Schedule 5 notice	Application Bespoke - Schedule 5 Response Dust Management Plan	26/02/2016

Table S1.3 Pre-operational measures	
Reference	**Pre-operational measures**
1	The Operator shall submit to the Environment Agency for approval a written drainage plan and obtain the Environment Agency's written approval to it.

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Permitted waste types and quantities for physical treatment	
Maximum quantity	250,000 tonnes per year
Waste code	Description
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast other than those mentioned in 17 05 07
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 09	minerals (for example sand, stones)
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 02	**garden and park wastes (including cemetery waste)**
20 02 02	soil and stones

Schedule 3 – Emissions and monitoring

Table S3.1 Ambient air monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
DM1 as described in the dust and particulate matter emission management plan *	Particulate Matter PM10	Continuous	Environment Agency guidance 'Monitoring of Particulate matter in ambient air around waste facilities, M17' (version 2 dated July 2013) or such other guidance as may be agreed in writing with the Environment Agency	Measured over a 5 minute averaging time.

*a PM10 monitoring survey will be undertaken at the site to determine the most suitable location for the monitoring device taking into consideration proposed infrastructure at the site and the locations of neighbouring sites with the potential to release particulate matter.

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Dust monitoring	DM1	Every quarter	On date of commencement of operations

Table S4.2 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air	Form air 1 or other form as agreed in writing by the Environment Agency	31/03/2016

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

"accident" means an accident that may result in pollution.

"Annex I" means Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"Annex II" means Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"authorised officer" means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

"building" means a construction that has the objective of providing sheltering cover and minimising emissions

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit..

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"List of Wastes" means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"R" means a recovery operation provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"Waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

"year" means calendar year ending 31 December.

When the following terms appear in the waste code list in Schedule 2, table S2.1, they have the meaning given below:

"hazardous substance" means a substance classified as hazardous as a consequence of fulfilling the criteria laid down in parts 2 to 5 of Annex I to Regulation (EC) No 1272/2008.

"heavy metal" means any compound of antimony, arsenic, cadmium, chromium (VI), copper, lead, mercury, nickel, selenium, tellurium, thallium and tin, as well as these materials in metallic form, as far as these are classified as hazardous substances.

"PCBs" means

- polychlorinated biphenyls
- polychlorinated terphenyls
- monomethyl-tetrachlorodiphenyl methane, Monomethyl-dichloro-diphenyl methane, Monomethyldibromo-diphenyl methane

- any mixture containing any of the above mentioned substances in a total of more than 0,005 %by weight.

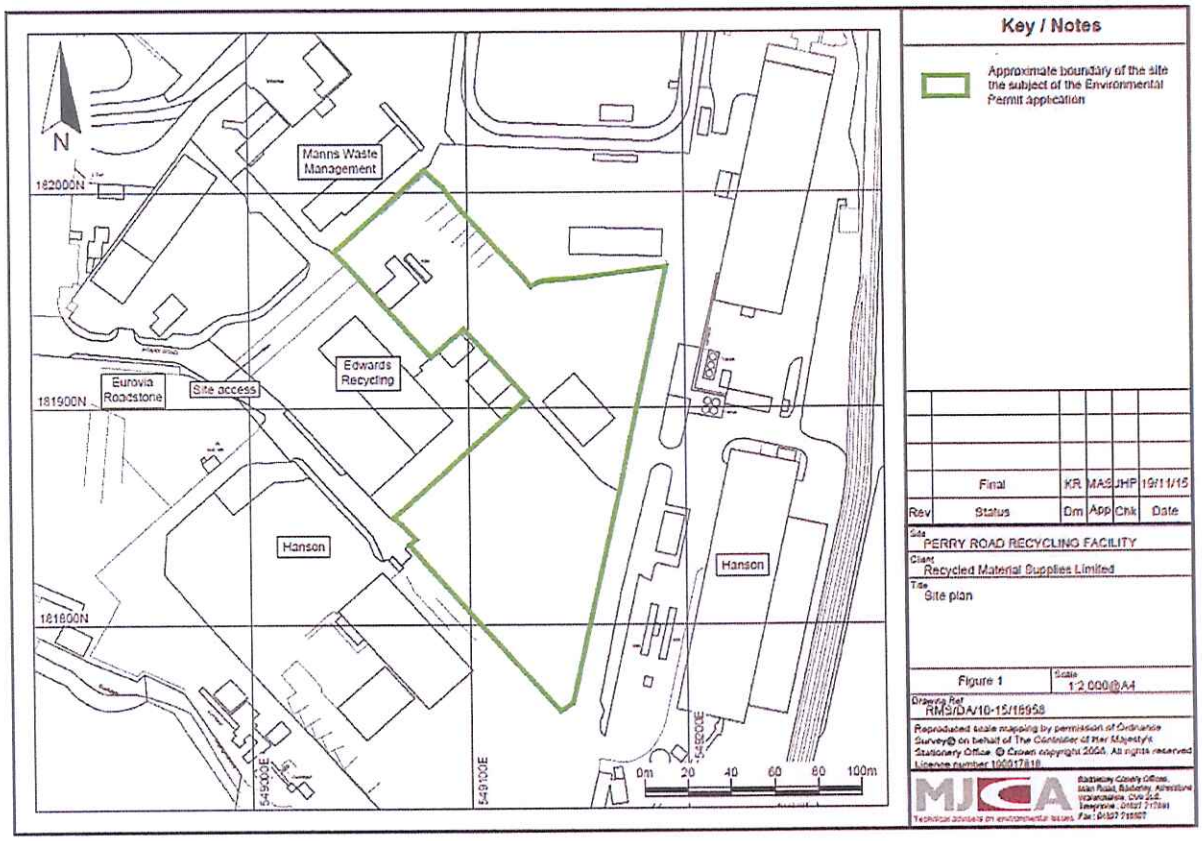
"transition metals" means any of the following metals: any compound of scandium, vanadium, manganese, cobalt, copper, yttrium, niobium, hafnium, tungsten, titanium, chromium, iron, nickel, zinc, zirconium, molybdenum and tantalum, as well as these materials in metallic form, as far as these are classified as hazardous substances.

"stabilisation" means processes which change the hazardousness of the constituents in the waste and transform hazardous waste into non-hazardous waste.

"solidification" means processes which only change the physical state of the waste by using additives without changing the chemical properties of the waste.

"partly stabilised wastes" means wastes containing, after the stabilisation process, hazardous constituents which have not been changed completely into non-hazardous constituents and could be released into the environment in the short, middle or long term.

Schedule 7 – Site plan



END OF PERMIT

Pat Gannon

From: Credit Control
Sent: 15 March 2019 09:07
To: Pat Gannon
Subject: FW: Invoice queries - 88273, 88263, 88246 - Oncecall

Hi Pat

Can you take a look at below please?
Kind Rgd
Alison

From: James Carter <james@onecallsiteservices.com>
Sent: 14 March 2019 15:04
To: Credit Control <CreditControl@rmseastlondon.co.uk>
Subject: Invoice queries - 88273, 88263, 88246

Please can you reissue these invoices. They should have been shown as a rate of £8 per tonne, not per load. Many thanks.

James Carter
Managing Director
07980 311485
james@onecallsiteservices.com

Onecall Site Services
26 Kings hill Avenue, Kings hill, West Malling, Kent, ME19 4AE
Tel: 01732 424242
web: www.onecallsiteservices.com

Company Registration Number 9427614

Aggregates | Grab & Tipper Hire | Crusher & Screener Hire | Muck Away | Plant Hire | Specialist Topsoil's | Hazardous Muck Away | Site Clearance

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Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Keltbray Environmental Ltd

Plaistow Wharf
North Woolwich Road
London
E16 2AB

Permit number

EPR/CP3035QC

Plaistow Wharf
Permit number EPR/CP3035QC

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

Plaistow Wharf is a transfer station accepting both hazardous and non-hazardous wastes, predominantly soil and stone from construction, demolition and excavation sites. No treatment of wastes will be undertaken at the installation.

The following schedule 1 activity is undertaken at the installation:

Section 5.6 Part A(1)(a)	Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes pending transfer offsite for recovery or disposal.

Up to 100,000 tonnes of non-hazardous waste and 50,000 tonnes of hazardous waste will be stored at the site per annum, prior to onward transfer for recovery or disposal. Wastes will be transported into and out of the site by road and by barge via the River Thames.

The surrounding area is mainly industrial in nature, including other waste management facilities. The site is north east of and adjacent to the River Thames. The site is located approximately 250m from the Newham Air Quality Management Area (declared for nitrogen dioxide and dust). The nearest residential receptors are located approximately 300m to the north east of the site. Approximately 1,900m to the south east of the site is Gilbert's Pit (Charlton) Site of Special Scientific Interest.

Due to the nature of the activities and the types of wastes accepted, there is the potential for dust emissions from the site. The operator has provided a Dust Management Plan that details the measures in place to prevent dust emissions beyond the site boundary.

Small quantities of non-hazardous combustible wastes may be included within the wastes accepted at the site. The operator has provided a Fire Prevention Plan, which describes the measures in place at the site to minimise the likelihood of a fire occurring, enable a fire to be extinguished within 4 hours, and minimise the spread of fire within the site and to neighbouring sites.

The site is surfaced in impermeable concrete. Surface water is managed so that contaminated run-off drains to a sealed sump, the contents of which will be periodically tankered off-site to a licensed disposal facility. Uncontaminated surface water run-off will be separately collected and discharged to the River Thames (emission point W01) via an interceptor.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/CP3035QC/A001	Duly made 11/10/2018	Application for bespoke installation permit: temporary storage of hazardous and non-hazardous wastes.
Additional information received	07/12/2018	Response to Schedule 5 notice dated 07/12/2018 including information on site plan, site drainage, waste throughput, fire prevention plan, dust management plan, waste acceptance procedures, waste storage and operating techniques.

Status log of the permit		
Description	**Date**	**Comments**
Additional information received	11/01/2018	Response to Schedule 5 notice dated 17/12/2018 including information on site condition report.
Permit determined EPR/CP3035QC (Billing ref. CP3035QC)	10/06/2019	Permit issued to Keltbray Environmental Ltd.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/CP3035QC

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

Keltbray Environmental Ltd ("the operator"),

whose registered office is

St Andrew's House
Portsmouth Road
Esher
Surrey
KT10 9TA

company registration number 06564049

to operate an installation at

Plaistow Wharf
North Woolwich Road
London
E16 2AB

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Emma Pemberton	**10/06/2019**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Energy efficiency

1.2.1 For the following activities referenced in schedule 1, table S1.1: AR1, the operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 For the following activities referenced in schedule 1, table S1.1: AR1, the operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.1.2 For the following activities referenced in schedule 1, table S1.1: AR1, waste authorised by this permit shall be clearly distinguished from any other waste on the site.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.4 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 tables S2.2 or S2.3; and

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.3.5 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazardous property associated with the waste, if applicable; and

(e) the waste code of the waste.

2.3.6 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

Hazardous waste storage and treatment

2.3.7 Hazardous waste shall not be mixed, either with a different category of hazardous waste or with other waste, substances or materials, unless it is authorised by schedule 1 table S1.1 and appropriate measures are taken.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2 and S3.3.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any

approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) point source emissions specified in tables S3.1 and S3.2;

(b) ambient air monitoring specified in table S3.3.

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.

3.6 Fire prevention

3.6.1 The operator shall take all appropriate measures to prevent fires on site and minimise the risk of pollution from them including, but not limited to, those specified in any approved fire prevention plan.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 For the following activities referenced in schedule 1, table S1.1: AR1, a report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the annual production /treatment data set out in schedule 4 table S4.2; and

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

4.3.1 In the event:

(a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

(i) inform the Environment Agency,

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

(iii) take the measures necessary to prevent further possible incidents or accidents;

(b) of a breach of any permit condition the operator must immediately—

(i) inform the Environment Agency, and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

(c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity and WFD Annex I and II operations**	**Limits of specified activity and waste types**
AR1	Section 5.6 Part A(1)(a)	Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes pending transfer off site for disposal or recovery. **R13:** Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced). **D15:** Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced).	From receipt of wastes to transfer off site. Subject to any other requirements of this permit wastes shall be stored for no longer than 1 year prior to disposal or 3 years prior to recovery. Waste shall be stored on an impermeable surface with sealed drainage. Waste shall be stored to a maximum height of half a metre (0.5m) below the boundary walls. Non-road mobile machinery (NRMM) used on site shall meet the requirements of Directive 97/69/EC unless otherwise agreed in writing by the Environment Agency. Waste types as specified in Table S2.2.
	Directly Associated Activity		
	Water discharges to controlled water.	Discharge of uncontaminated site drainage from the installation.	From interceptor to point of entry to controlled water.
	Water discharges to sealed sump.	Discharge of contaminated site drainage from the installation.	From collection in sealed drainage system to transfer from installation.

Activity reference	**Description of activities for waste operations**	**Limits of activities**
AR2	Temporary storage of non-hazardous waste. R13: Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced).	Subject to any other requirements of this permit wastes shall be stored for no longer than 1 year prior to disposal or 3 years prior to recovery. Waste shall be stored on an impermeable surface with sealed drainage. Waste shall be stored to a maximum height of half a metre (0.5m) below the boundary walls.

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity and WFD Annex I and II operations**	**Limits of specified activity and waste types**
	D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced).	Non-road mobile machinery (NRMM) used on site shall meet the requirements of Directive 97/69/EC unless otherwise agreed in writing by the Environment Agency. Waste types as specified in Table S2.3.	

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	Parts A, B2, B3 and F1 the application documents and all supporting information.	Duly Made 11/10/2018
Information received in response to Schedule 5 notice dated 07/12/2018	Fire Prevention Plan Dust Management Plan Materials Acceptance Procedures Site Working Plan (including barge loading procedure)	08/03/2019 08/03/2019 10/06/2019 10/06/2019
Information received in response to Schedule 5 notice dated 17/12/2018	Response to questions regarding site condition report and fuel storage and refuelling activities	11/01/2019
Information received in response to question 6 of email dated 01/02/2019	Additional detail on waste acceptance and rejection procedures Environmental Plan (including interceptor maintenance procedure)	15/02/2019 08/03/2019

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	A written report considering the results of the first 12 months of ambient air monitoring, required by table S3.3, shall be submitted to the Environment Agency for approval. The report shall include, but not be limited to: • a review of the monitoring data, identifying any trends, 'spikes' or significant increases in the levels of dust recorded; • a review outlining the sources and activities attributed to causing any increases in levels of dust and the evidence supporting these conclusions; • an assessment of the impact of fugitive dust emissions from the installation; • a review of the effectiveness of the operator's particulate/dust monitoring strategy as described in the Dust Management Plan. This should include a review of the existing operational procedures and general housekeeping for the control of fugitive dusts; • proposals for amendments to existing procedures, or for the implementation of additional measures, if deemed necessary	15 months from the commencement of operations.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
	following the review of monitoring data and dust impact assessment; and • a proposed timetable for completion of any required works. The operator shall implement any necessary actions, outcomes and/or improvements to a timetable agreed in writing with the Environment Agency.	
IC2	Upon completion of IC1, the operator shall submit a revised Dust Management Plan, for approval by the Environment Agency, which incorporates all agreed additional measures.	2 months from the completion and approval of IC1.
IC3	The operator shall implement the monitoring programme required by pre-operational condition PO3 to validate the assumptions made in application EPR/CP3035QC/A001 in relation to the releases of pollutants to surface water (via the interceptor) at emission point W01. The operator shall submit monitoring data, collected during the first twelve months of operation, in writing to the Environment Agency according to agreed reporting periods.	13 months from commencement of operations.
IC4	The operator shall conduct a review of the discharge from emission point W01 using the results of the monitoring undertaken in response to IC3 during the first year of operation. The review shall be used to validate the description of the discharge provided with the application. If any pollutants are identified at levels above those that would be expected to be found in uncontaminated water, the origins of these contaminants shall be investigated and their levels considered through an environmental risk assessment. The environmental risk assessment must be undertaken in accordance with the screening procedures in Environment Agency guidance: Surface water pollution risk assessment for your environmental permit (link) published 01 February 2016, last updated 03 April 2018), using the representative emissions data obtained in IC3 above. A written report shall be submitted to the Environment Agency for approval. The report shall include, but not be limited to: • details of the IC3 monitoring results and subsequent review; • an environmental risk assessment where necessary; • confirmation of the ongoing monitoring schedule for discharge to surface water from emission point W01, including parameters to be monitored, monitoring frequency and reporting to the Environment Agency; • proposals for amendments to existing procedures and/or for the implementation of additional measures; and • a proposed timetable for completion of any changes or works.	3 months from the completion of IC3.

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
PO1	Prior to the commencement of commissioning, the operator shall submit a report demonstrating the baseline conditions of soil and groundwater at the installation. The report shall contain the information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definitive cessation of activities provided for in Article 22(3) of the IED. The report shall contain information, supplementary to that already provided in the application Site Condition Report, needed to meet the information requirements of Article 22(2) of the IED. The report must be agreed in writing by the Environment Agency prior to commencement of the activities.
PO2	Prior to the commencement of operations, the operator shall provide a copy of the final Construction Quality Assurance Validation Report documenting the completion of all hard surfacing and drainage construction works. The operator shall ensure that a review of the design, method of construction and integrity of the hard surfacing and drainage is carried out by a qualified structural engineer.
PO3	The operator shall develop a monitoring programme to validate the assumptions made in application EPR/CP3035QC/A001 in relation to the releases of pollutants to surface water (via the interceptor) at emission point W01. The monitoring programme and associated methodologies shall be agreed in writing with the Environment Agency prior to the commencement of operations, having regard to the Environment Agency M18 Guidance Note: Monitoring of discharges to water and sewer, version 6, September 2017. As a minimum the monitoring programme should include monthly monitoring frequency. The pollutants to be monitored shall include: arsenic, cadmium, chromium (total), chromium VI, copper, mercury, nickel, lead, selenium, zinc, hydrocarbons and any other relevant parameters as having been identified as potentially present within the discharge. The monitoring programme shall include reporting periods for the submission of the collected monitoring data to the Environment Agency.

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
-	-

Table S2.2 Permitted waste types and quantities for activity AR1 – temporary storage of hazardous waste	
Maximum quantity	**50,000 tonnes per annum**
Exclusions	**Wastes having any of the following characteristics shall not be accepted:** • **consisting solely or mainly of dusts, powders or loose fibres** • **wastes that are in a form which is either sludge or liquid**
Waste code	**Description**
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 06*	mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing hazardous substances
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 01*	bituminous mixtures containing coal tar
17 04	**metals (including their alloys)**
17 04 09*	metal waste contaminated with hazardous substances
17 04 10*	cables containing oil, coal tar and other hazardous substances
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 03*	soil and stones containing hazardous substances
17 05 05*	dredging spoil containing hazardous substances
17 05 07*	track ballast containing hazardous substances
17 09	**other construction and demolition wastes**
17 09 03*	other construction and demolition wastes (including mixed wastes) containing hazardous substances
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 06*	wood containing hazardous substances
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing hazardous substances

Table S2.3 Permitted waste types and quantities for activity AR2 – temporary storage of non-hazardous waste	
Maximum quantity	**100,000 tonnes per annum**
Exclusions	**Wastes having any of the following characteristics shall not be accepted:** • **consisting solely or mainly of dusts, powders or loose fibres** • **wastes that are in a form which is either sludge or liquid**
Waste code	**Description**
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	**wood, glass and plastic**
17 02 01	wood
17 02 02	glass
17 02 03	plastic
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 04	**metals (including their alloys)**
17 04 07	mixed metals
17 04 11	cables other than those mentioned in 17 04 10
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast other than those mentioned in 17 05 07
17 09	**other construction and demolition wastes**
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 02	ferrous metal
19 12 03	non-ferrous metal
19 12 04	plastic and rubber
19 12 05	glass
19 12 07	wood other than that mentioned in 19 12 06
19 12 09	minerals (for example sand, stones)

Table S2.3 Permitted waste types and quantities for activity AR2 – temporary storage of non-hazardous waste	
Maximum quantity	**100,000 tonnes per annum**
Exclusions	**Wastes having any of the following characteristics shall not be accepted:** • **consisting solely or mainly of dusts, powders or loose fibres** • **wastes that are in a form which is either sludge or liquid**
Waste code	**Description**
19 12 12	from mechanical treatment of wastes, predominantly screened soil and stone other than those mentioned in 19 12 11 – excluding all combustible wastes
19 13	**wastes from soil and groundwater remediation**
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 08	biodegradable kitchen and canteen waste
20 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 02 02	soil and stones
20 03	**other municipal wastes**
20 03 01	mixed municipal waste

Schedule 3 – Emissions and monitoring

Table S3.1 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W01 on site plan in schedule 7 emission to River Thames	Uncontaminated surface water interceptor	Parameters as agreed following completion of IC4	No limit set	-	Monthly or as otherwise agreed following completion of IC4	In accordance with M18 methodology unless otherwise agreed in writing by the Environment Agency

Table S3.2 Point source emissions to sewer, effluent treatment plant or other transfers off-site – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. Unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
S01 on site plan in schedule 7 emission to sealed sump, empties and tankered off-site by contractor	Contaminated surface water run-off from waste storage bays	No parameters set	No limit set	-	-	-

Table S3.3 Ambient air monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
M01 on site plan in schedule 7	Particulate matter less than 10 micrometres in diameter (PM_{10})	5 minute	The equipment shall be operated to a procedure agreed in writing with the Environment Agency.	Monitoring equipment should meet the MCERTS Performance Standards for Indicative Ambient Particulate Monitors or similar standard agreed in writing with the Environment Agency. The equipment shall be calibrated in accordance with the manufacturer's recommendations or 6 monthly, whichever is first. The system must be managed and maintained by suitably trained personnel. The system must obtain representative data that must accurately reflect PM_{10} levels produced by the site's activities.

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Ambient air monitoring Parameters as required by condition 3.5.1.	M01	Every 3 months	1 January, 1 April, 1 July, 1 October

Table S4.2: Annual production/treatment	
Parameter	**Units**
Hazardous waste IN	tonnes
Hazardous waste OUT	tonnes
Non-hazardous waste IN	tonnes
Non-hazardous waste OUT	tonnes
Waste recycled	tonnes
Waste disposed	tonnes

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Water usage	Annually	tonnes
Energy usage	Annually	MWh

Table S4.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	10/06/2019
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	10/06/2019
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	10/06/2019
Particulates	Form particulate 1 or other form as agreed in writing by the Environment Agency	10/06/2019
Waste subject to condition 4.2.5	Waste tonnage return from the Environment Agency website or other form as agreed in writing by the Environment Agency	10/06/2019

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“disposal”. Means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“emissions to land” includes emissions to groundwater.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Hazardous property” has the meaning in Annex III of the Waste Framework Directive.

“Hazardous waste” has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 (as amended).

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

“year” means calendar year ending 31 December.

When the following terms appear in the waste code list in Schedule 2, tables 2.2 and 2.3, for those tables, they have the meaning given below:

“hazardous substance” means a substance classified as hazardous as a consequence of fulfilling the criteria laid down in parts 2 to 5 of Annex I to Regulation (EC) No 1272/2008.

“heavy metal” means any compound of antimony, arsenic, cadmium, chromium (VI), copper, lead, mercury, nickel, selenium, tellurium, thallium and tin, as well as these materials in metallic form, as far as these are classified as hazardous substances.

“PCBs” means

- polychlorinated biphenyls
- polychlorinated terphenyls
- monomethyl-tetrachlorodiphenyl methane, Monomethyl-dichloro-diphenyl methane, Monomethyldibromo-diphenyl methane
- any mixture containing any of the above mentioned substances in a total of more than 0,005% by weight.

“transition metals” means any of the following metals: any compound of scandium, vanadium, manganese, cobalt, copper, yttrium, niobium, hafnium, tungsten, titanium, chromium, iron, nickel, zinc, zirconium, molybdenum and tantalum, as well as these materials in metallic form, as far as these are classified as hazardous substances.

“stabilisation” means processes which change the hazardousness of the constituents in the waste and transform hazardous waste into non-hazardous waste.

“solidification” means processes which only change the physical state of the waste by using additives without changing the chemical properties of the waste.

“partly stabilised wastes” means wastes containing, after the stabilisation process, hazardous constituents which have not been changed completely into non-hazardous constituents and could be released into the environment in the short, middle or long term.

Schedule 7 – Site plan



END OF PERMIT

creating a better place

Environment Agency

RECEIVED
3 - FEB 2012

Company Secretary
Brett Aggregates Limited
150 Aldersgate Street
London
EC1A 4AB

Our ref: EPR/EB3732RR/A001

Date: 31 January 2012

Dear Sir or Madam,

Your new environmental permit

Permit reference: EPR/EB3732RR/A001
Waste returns reference: EAWML 103836
Operator: Brett Aggregates Limited
Facility: Queen Mary Reservoir Recycling Facility, Ashford Road, Laleham, Staines, Middlesex, TW18 1QF

Our determination of your application for a permit is complete and we're satisfied that you can carry out your activities in accordance with the enclosed permit, without harm to the environment or human health. I enclose your new permit. Please keep it in a safe place.

This letter contains web links to other documents. If you aren't able to access these phone our Customer Contact Centre for help.

You need to read our document 'How to comply with your environmental permit'. This will help you understand what you need to do to meet the conditions of your permit. You can find this on our guidance web page at http://www.environment-agency.gov.uk/business/topics/permitting/32320.aspx

Please look at the table below and note any of the things that apply to your permit.

If...	then..
you plan to keep your records at a site other than where the activity takes place	you need to let us know within 20 working days of receiving this letter.
your permit includes pre-operational or improvement conditions	check the deadlines for completing measures and make sure you carry them out by the times stated
you are carrying out a waste operation or activity and need to submit quarterly waste returns on waste movements **Note:** This does not apply to permits that only have stand alone water discharge or groundwater activities.	you can get the forms you need from our website http://www.environment-agency.gov.uk/business/topics/waste/32176.aspx When you complete your return use the waste returns reference above.
your permit includes an installation	we enclose a legal notice and information about reporting to the Pollution Inventory.
you need to submit other returns	send these to your area office. Speak to your area officer to check local arrangements.

There is an annual subsistence charge for your permit unless:

- your permit is only for discharges of sewage effluent where the maximum daily volume of discharge permitted is five cubic metres or less (this does not apply to non trade effluent or any other type of discharge);
- or your permit is only for mobile plant, instead we will charge for each deployment.

The annual charge is due on demand in the year that we issue the permit and then on 1 April each year. The charge starts from the date we authorise the permit, unless there's a condition relating to a standalone water discharge which states a later start date. In that case we will charge for the discharge from the start date. If you need to know more about the subsistence charge please look at the charging guidance on our website at http://www.environment-agency.gov.uk/business/regulation/31857.aspx

If you have any questions about this permit please phone our Customer Contact Centre on 03708 506 506. They will put you in touch with a local area officer.

Yours faithfully

Beata Czech
Permitting Officer

Permit

The Environmental Permitting (England & Wales) Regulations 2010

Brett Aggregates Limited

Queen Mary Reservoir Recycling Facility
Ashford Road
Laleham
Staines
Middlesex
TW18 1QF

Permit number

EPR/EB3732RR

Copies to:

Rob Pinnock
Damian McCloan
SHE Dept - scanned

Orginal : Lesley Band - fire safe.

Sent 3/2/12
LBM

Permit

Permit number
EPR/EB3732RR

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

Brett Aggregates Limited ("the operator"),

whose registered office is

150 Aldersgate Street
London
EC1A 4AB

company registration number **00316788**

to operate waste operations described in standard rules **SR2010No12** at

Queen Mary Reservoir Recycling Facility
Ashford Road
Laleham
Staines
Middlesex
TW18 1QF

to the extent authorised by and subject to the conditions of this permit.

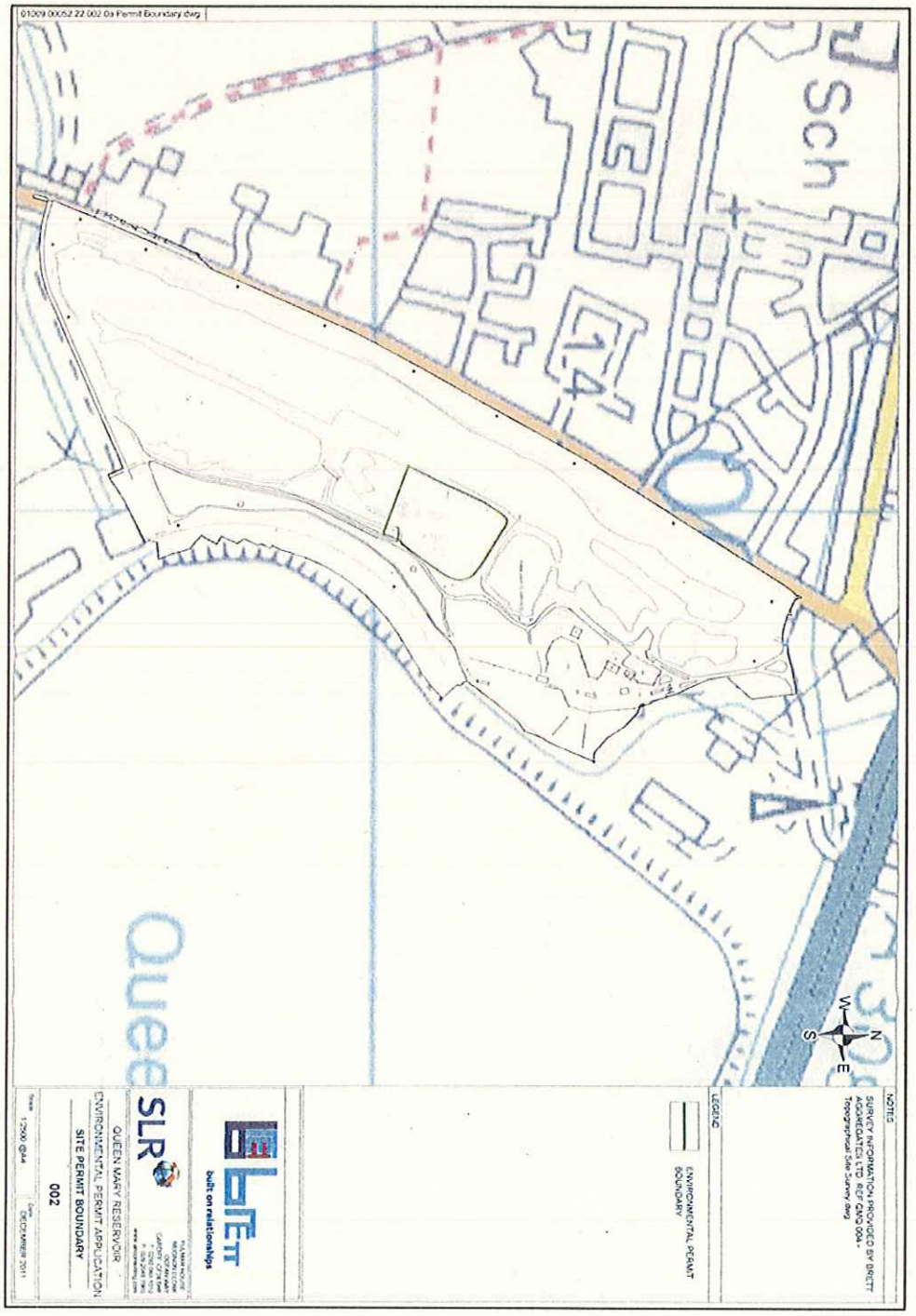
Under regulation 27(2) of the Regulations, standard rules **SR2010No12** are conditions of this permit.

Name	Date
Alan Whitley	**31st January 2012**

Authorised on behalf of the Environment Agency

Schedule 1 - Site plan

This is the plan referred to in the standard rules SR2010No12



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Standard rules

Chapter 4, The Environmental Permitting (England and Wales) Regulations 2010

Environment Agency

Standard rules SR2010No12
Treatment of waste to produce soil, soil substitutes and aggregate

Introductory note

This introductory note does not form part of these standard rules.

When referred to in an environmental permit, these standard rules will allow the operator to store waste at a specified location and treat it to produce soil, soil substitutes and aggregate. Permitted wastes do not include hazardous wastes. The total quantity of waste that can be stored and subsequently treated at the site under these standard rules shall be no more than 75,000 tonnes per year. These standard rules do not permit the burning of any wastes, either in the open, inside buildings or in any form of incinerator.

The permitted activities shall not be carried out within 500 metres of a European Site[1], Ramsar site or a Site of Special Scientific Interest (SSSI) nor within a specified Air Quality Management Area (AQMA)[2]. The permitted activities shall not be within:

- 10 metres of any watercourse;
- 50 metres from any spring or well, or from any borehole not used to supply water for domestic or food production purposes; and
- 250 metres from any well, spring or from any borehole used to supply water for domestic or food production purposes.

These standard rules do not allow any point source emission into surface waters or groundwater. However, under the emissions of substances not controlled by emission limits rule:

- Liquids may be discharged into a foul sewer subject to a consent issued by the local water company.
- Liquids may be taken off-site in a tanker for disposal or recovery.
- Clean surface water from roofs, or from areas of the site that are not being used in connection with storing and treating waste, may be discharged directly to surface waters, or to groundwater by seepage through the soil via a soakaway.

End of introductory note

[1] A candidate or Special Area of Conservation (cSAC or SAC) and proposed or Special Protection Area (pSPA or SPA) in England and Wales.

[2] An Air Quality Management Area within the meaning of the Environment Act 1995 which has been designated due to concerns about particulate matter in the form of PM10.

Rules

1 – Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with rule 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in these standard rules shall have convenient access to a copy of them kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

2 – Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the operations specified in table 2.1 below ("the activities").

Table 2.1 Activities

Description of activities	Limits of activities
R13: Storage of wastes pending the operations numbered R3 and R5. **R3:** recycling or reclamation of organic substances which are not used as solvents. **R5:** Recycling or reclamation of other inorganic materials.	Treatment of wastes listed in table 2.3 consisting only of sorting, separation, screening, crushing and blending of waste for recovery as a soil, soil substitute or aggregate. Secure storage of wastes listed in table 2.3 pending treatment. Storage of wastes listed in table 3.1 shall not exceed 10,000 tonnes in total at any one time. All other wastes stored shall not exceed 40,000 tonnes in total at any one time. No more than 75,000 tonnes of waste shall be treated per year.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan attached to the permit.

2.2.2 The activities shall not be carried out within:

(a) 500 metres of a European Site or Site of Special Scientific Interest (SSSI);

(b) 10 metres of any watercourse;

(c) 50 metres of any spring or well, or any borehole not used to supply water for domestic or food production purposes;

(d) 250 metres of any well, spring or borehole used to supply water for domestic or food production purposes; and / or

(e) a specified AQMA.

2.3 Waste acceptance

2.3.1 Waste shall only be accepted if:

(a) it is of a type listed in table 2.3 of these standard rules;

(b) it conforms to the description in the documentation supplied by the producer and holder;

(c) its chemical, physical and biological characteristics make it suitable for its intended treatment;

(d) any excavated soil from potentially contaminated sites has been shown by prior chemical analysis and assessment to be suitable for the intended use without significant risk of pollution; and

(e) it is visually inspected on arrival and before it enters the treatment process to ensure that it complies with these standard rules.

2.3.2. Any waste that does not comply with 2.3.1 shall be rejected and shall be;

(a) removed from the site; or

(b) moved to a designated quarantine area pending removal.

2.3.3 Records demonstrating compliance with rule 2.3 (including analysis and assessment of any excavated soil from potentially contaminated sites) shall be maintained.

Table 2.3 Waste types

Exclusions

Wastes having any of the following characteristics shall not be accepted:

- **Consisting solely or mainly of dusts, powders or loose fibres**
- **Hazardous wastes**
- **Wastes in liquid form**

Waste Code	Description
01	**WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS**
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
02 02	**waste from preparation and processing of meat, fish and other foods of animal origin**
02 02 02	shellfish shells from which the soft tissue or flesh has been removed only

03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
10	**WASTES FROM THERMAL PROCESSES**
10 01	**waste from power stations and other combustion plants**
10 01 01	bottom ash and slag only
10 01 02	pulverised fuel ash only
10 01 05	gypsum (solid) only
10 01 07	gypsum (sludge) only
10 01 15	bottom ash and slag only from co-incineration other than those mentioned in 10 01 14
10 11	**wastes from manufacture of glass and glass products**
10 11 12	clean glass other than those mentioned in 10 11 11
10 12	**wastes from manufacture of ceramic goods, brick, stiles and construction products**
10 12 08	waste ceramics, bricks, tiles and construction products(after thermal processing)
10 13	**wastes from manufacture of cement, lime and plaster products and articles and products made from them**
10 13 14	waste concrete only
15	**WASTE PACKAGING**
15 01	**packaging**
15 01 07	clean glass only
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	**wood, glass and plastic**
17 02 02	clean glass only
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	road base and road planings (other than those containing coal tar) only
17 05	**soil (including excavated soil from contaminated sites) stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast other than those mentioned in 17 05 07
17 08	**gypsum based construction material**
17 08 02	gypsum only other than that mentioned in 17 08 01
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION / INDUSTRIAL WASTE**
19 05	**wastes from aerobic treatment of solid waste**
19 05 03	compost from source segregated biodegradable waste only
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 02	washed sewage grit (waste from desanding) free from sewage contamination only
19 08 99	stone filter media if free from sewage contamination only
19 09	**wastes from the preparation of water intended for human consumption or water for industrial use**
19 09 02	sludges from water clarification

19 12	**wastes from the mechanical treatment of wastes**
19 12 05	clean glass only
19 12 09	minerals (for example sand, stones)
19 12 12	treated bottom ash including IBA and slag other than that containing dangerous substances only
19 13	**wastes from soil and groundwater remediation**
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	**separately collected fractions**
20 01 02	clean glass only
20 02	**garden and park wastes**
20 02 02	soil and stones

3 – Emissions and monitoring

3.1 Emissions of substances not controlled by emission limits

3.1.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this rule if appropriate measures, including, but not limited to, those specified in Table 3.1 below and in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

Table 3.1 Appropriate measures for emissions not controlled by emission limits

When located within groundwater Source Protection Zones 1 or 2 the specified wastes below shall be stored and treated on an impermeable surface with a sealed drainage system.

When located outside groundwater Source Protection Zones 1 or 2 all permitted wastes shall be stored and treated on hard-standing or on an impermeable surface with sealed drainage system.

Waste Code	Description
03 01 01	waste bark and cork
03 03 01	waste bark and wood
10 01 01	bottom ash and slag only
10 01 05	gypsum (solid) only
10 01 07	gypsum (sludge) only
10 01 15	bottom ash and slag only from co-incineration other than those mentioned in 10 01 14
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 08 02	gypsum only other than that mentioned in 17 08 01
19 05 03	compost from source segregated biodegradable waste only
19 09 02	sludges from water clarification
19 12 12	treated bottom ash including IBA and slag other than that containing dangerous substances only
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03

3.1.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.1.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container

3.2 Odour

3.2.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable, to minimise, the odour.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.3 Noise and vibration

3.3.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan, to prevent or where that is not practicable, to minimise, the noise and vibration.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

4 – Information

4.1 Records

4.1.1 All records required to be made by these standard rules shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible or are capable of retrieval; and

(d) be retained, unless otherwise agreed by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by these standard rules, unless otherwise agreed in writing by the Environment Agency

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by these standard rules to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

4.3.1 The Environment Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in these standard rules; or

(c) any significant adverse environmental effects.

4.3.2 Written confirmation of actual or potential pollution incidents and breaches of emission limits shall be submitted within 24 hours.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters except where such disclosure is prohibited by Stock Exchange rules:

a) Where the operator is a registered company:

- any change in the operator's trading name, registered name or registered office address; and
- any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

b) Where the operator is a corporate body other than a registered company:

- any change in the operator's name or address; and
- any steps taken with a view to the dissolution of the operator.

c) In any other case:

- the death of any of the named operators (where the operator consists of more than one named individual);
- any change in the operator's name(s) or address(es); and
- any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case them being in a partnership, dissolving the partnership.

4.4 Interpretation

4.4.1 In these standard rules the expressions listed below shall have the meaning given.

4.4.2 In these standard rules references to reports and notifications mean written reports and notifications, except when reference is being made to notification being made "without delay", in which case it may be provided by telephone.

"accident" means an accident that may result in pollution.

"AQMA" means an air quality management area within the meaning of the Environment Act 1995 which has been designated due to concerns about particulate matter in the form of PM10.

"authorised officer" means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in Section 108(4) of that Act.

"dangerous substances" means any substance that has been or will be classified as dangerous in Directive 67/548/EEC and its subsequent amendments.

"*domestic purposes*" has the same meaning as in section 218 of the Water Industry Act 1991.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, either from emission points specified in these standard rules or from other localised or diffuse sources, which are not controlled by an emission limit.

"European Site" means Special Area of Conservation or candidate Special Area of Conservation or Special Protection Area or proposed Special Protection Area in England and Wales, within the meaning of Council Directives 79/409/EEC on the conservation of wild birds and 92/43/EEC on the conservation of natural habitats and of wild flora and fauna and the Conservation (Natural Habitats &c) Regulations 1994. Internationally designated Ramsar sites are dealt with in the same way as European sites as a matter of government policy and for the purpose of these rules will be considered as a European Site.

"food production purposes" means the manufacturing, processing, preserving or marketing purposes with respect to food or drink for which water supplied to food production premises may be used, and for the purposes of this definition "food production purposes" means premises used for the purposes of a business of preparing food or drink for consumption otherwise than on the premises.

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"impermeable surface" means a surface or pavement constructed and maintained to a standard sufficient to prevent the transmission of liquids beyond the pavement surface, and should be read in conjunction with the term "sealed drainage system" (below).

"hardstanding" is a compacted solid surface capable of withstanding the operation and the loading / unloading of wastes.

"IBA" means incinerator bottom ash derived from the incineration or pyrolosis of waste.

"pollution" means emissions as a result of human activity which may—

(a) be harmful to human health or the quality of the environment,
(b) cause offence to a human sense,
(c) result in damage to material property, or
(d) impair or interfere with amenities and other legitimate uses of the environment.

"*quarter*" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"R" means a recovery operation provided for in Annex IIB to Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on Waste.

"sealed drainage system" in relation to an impermeable surface, means a drainage system with impermeable components which does not leak and which will ensure that:

(a) no liquid will run off the surface otherwise than via the system;
(b) except where they may lawfully be discharged to foul sewer, all liquids entering the system are collected in a sealed sump.

"secure storage" means storage where waste cannot escape and members of the public do not have access to it.

"SSSI" means Site of Special Scientific Interest within the meaning of the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000).

"waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

"year" means calendar year commencing on 1st January.

End of standard rules

creating a better place

RECEIVED
12 NOV 2015

Environment Agency

The Company Director and/or Secretary
Brett Aggregates Limited
150 Aldersgate Street
London
EC1A 4AB

Our ref: EPR/DB3501KS/T001

Date: 27 August 2015

Dear Sir or Madam

Transfer of permit is complete

Permit reference: EPR/DB3501KS/T001
Waste returns reference: EAWML 401196
Operator: Brett Aggregates Limited
Facility: Rainham Recycling Facility, Launders Lane, Rainham, Essex, RM13 9GJ

Our determination of your application for a full transfer is complete. We're satisfied that you will be the person who will operate the facility and you will comply with the requirements of the permit. The transfer takes effect from 28 October 2015. I enclose a notice showing the transfer details and your permit conditions. Keep this in a safe place with your other permit records.

This letter contains web links to other documents. If you aren't able to access these phone our Customer Contact Centre for help.

The environmental permit should have been passed to you during the handover of the property or business. If you do not have a copy of the permit you must contact a local officer. Telephone our Customer Contact Centre on 03708 506 506 and they will put you in touch with an area officer. The area officer can also help you with any other questions you have about the permit.

You will also need to look at the document 'How to comply with your environmental permit' as this will help you understand how to meet the conditions of the permit. You can find this on our guidance web page

https://www.gov.uk/government/publications/how-to-comply-with-your-environmental-permit

A local regulatory officer will visit you to assess compliance with your permit conditions.

Please look at the table below and note any of the things that apply to your permit.

If...	**then..**
you plan to keep your records at a site other than where the activity takes place	you need to let us know within 20 working days of receiving this letter.
your permit includes pre-operational or improvement conditions	check the deadlines for completing measures and make sure you carry them out by the times stated

Table continues on next page.

Land Team, Permitting and Support Centre, Quadrant 2, 99 Parkway Avenue, Sheffield, S9 4WF
Phone: 03708 506 506
Email: enquiries@environment-agency.gov.uk
www.gov.uk/environment-agency

INVESTOR IN PEOPLE

If...	then..
you are carrying out a waste operation or activity and need to submit quarterly waste returns on waste movements **Note:** This does not apply to permits that only have stand alone water discharge or groundwater activities.	you can get the forms you need from our website https://www.gov.uk/government/collections/national-operator-waste-returns When you complete your return use the waste returns reference above.
your permit includes an installation	we enclose a legal notice and information about reporting to the Pollution Inventory.
you need to submit other returns	send these to your area office. Speak to your area officer to check local arrangements.

There is an annual subsistence charge for your permit unless:

- your permit is only for discharges of sewage effluent where the maximum daily volume of discharge permitted is five cubic metres or less (this does not apply to trade effluent or any other type of discharge)
- or your permit is only for mobile plant, instead we will charge for each deployment.

The annual charge is due on demand in the year that we issue the permit and then on 1 April each year. The charge starts from the date we authorise the permit, unless there's a condition relating to a standalone water discharge which states a later start date for the discharge. In that case we will charge for the discharge from the start date. If you need to know more about the subsistence charge please look at the charging guidance on our website at https://www.gov.uk/government/publications/environmental-permitting-ep-charges-scheme-april-2014-to-march-2015
If you have any questions about this permit please phone our Customer Contact Centre on 03708 506 506. They will put you in touch with a local area officer.

Yours sincerely

Joel Robson
Permitting Support Advisor

Notice of transfer with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Brett Aggregates Limited

Rainham Recycling Facility
Launders Lane
Rainham
Essex
RM13 9GJ

Transfer application number

EPR/DB3501KS/T001

Permit number

EPR/DB3501KS

Rainham Recycling Facility
Permit number EPR/DB3501KS

Introductory note

This introductory note does not form a part of the notice.

The following notice gives notice of the transfer of an environmental permit to a new operator (the transferee).

This permit is transferred in full from O'Keefe Utilities Limited to Brett Aggregates Limited.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Original permit issued EPR/BB3300TL	18/06/14	Tier 2 Bespoke permit based on SR2010 No12 issued to O'Keefe Utilities Limited
Application EPR/DB3501KS/T001 (full transfer of permit EPR/BB3300TL)	Duly made 27/09/15	Application to transfer the permit in full to Brett Aggregates Limited.
Transfer determined EPR/DB3501KS	28/10/15	Full transfer of permit complete.

End of introductory note

Notice of transfer

The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 21 of the Environmental Permitting (England and Wales) Regulations 2010 transfers

Permit number

EPR/BB3300TL

to

Brett Aggregates Limited ("the operator")

whose registered office is

150 Aldersgate Street
London
EC1A 4AB

company registration number 00316788

to operate a regulated facility at

Rainham Recycling Facility
Launders Lane
Rainham
Essex
RM13 9GJ

from O'Keefe Utilities Limited

The notice shall take effect from 28/10/15

The number of the new permit granted to Brett Aggregates Limited is EPR/DB3501KS

Name	Date
Helen Smith	**28/10/15**

Authorised on behalf of the Environment Agency

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Land & Water Remediation Limited

Silt Lagoons at Rainham and Wennington Marshes
Cold Harbour Lane
Rainham
RM13 9YQ

Variation application number

EPR/FB3701XY/V003

Permit number

EPR/FB3701XY

Silt Lagoons at Rainham and Wennington Marshes Permit number EPR/FB3701XY

Introductory note

This introductory note does not form a part of the notice

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. Only the variations specified in schedule 1 are subject to a right of appeal.

Variation – EPR/FB3701XY/V003

This variation increases the annual waste input rate specified in table S1.5 of the permit from 350,000 tonnes to 750,000 tonnes.

Waste code 19 02 03 has been added to the tables S2.1 and S2.2 of the permit to allow for the deposition of dewatered tunnel arisings from the Thames Tideway project or similar projects, arisings which have not required dewatering will continue to be deposited as 17 05 04.

A pre-operational condition has been added to table S1.4 of the permit to ensure an appropriate stability action plan and procedure is in place prior to the increase in the annual waste input rate taking effect.

No changes or additions to the operating techniques in table S1.2 of the permit were required as a result of this variation.

The rest of the permit remains the same and is described as follows.

Variation – EPR/FB3701XY/V002

This variation permits the operator to continue to infill the lagoons with dredgings and accept inert wastes. The operator will restore the site in accordance with the approved restoration plan that details that:-

- approximately 3.35 million m^3 of materials will be imported to the site (delivered either by road or river including pumped to shore from the jetty);
- the imported non-hazardous and inert material will be used to infill the lagoons and restore the site in accordance with the approved restoration scheme;
- the site will be filled in six phases to provide improved habitats. The timing and sequence of infilling will be agreed with the RSPB; and
- the site (which is currently a failing Site of Special Scientific Interest (SSSI)) will provide a desirable habitat and / or environment for protected species such as breeding birds, invertebrates and swamp reed beds.

This variation also permits the following activities:-

- Section 5.2 A(1) (a) – Landfill for non-hazardous waste including inert waste and restoration of the landfill
- Temporary storage of waste in drying area
- Temporary storage of waste for restoration
- Management and discharge of site drainage from the landfill
- Storage of fuel for operation of plant and equipment
- Storage and use of materials to make roads and paths.

The Environment Agency has a duty, under the Environmental Permitting (England and Wales) Regulations 2016, regulation 34(1), to periodically review permits. As a result of the application made by the operator, all the conditions have been varied which means that we do not have to vary any further conditions as a consequence of the permit review.

The site is located close to the River Thames near Rainham at National Grid reference TQ 526 805. The site is southwest of the A13 and approximately 0.5 miles from the town of Rainham, Essex. There is a landfill, Rainham Landfill operated by Veolia ES Landfill Ltd (EP3136GK), to the south of the site on the other side of Coldharbour Lane and a number of drainage ditches.

The site which is known as the Silt Lagoons at the Rainham and Wennington Marshes (the site) is owned by the RSPB. It was previously owned by the Ministry of Defence. The site, to which this permit relates, comprises a section of the Rainham and Wennington Marshes site area that is leased to the Port of London Authority (PLA) who licence Land & Water Remediation Limited for the deposit of dredgings and inert materials. This site has been used for the deposit of dredgings in a series of lagoons since the 1960's.

The site makes up part of the Inner Thames Marshes SSSI. The site covers an area of approximately 121 hectares and comprises nine lagoons, into which dredgings have been pumped across the base. The lagoons are impounded by clay bunds and infilled to between approximately 3 and 5 mAOD (i.e. circa 5m depth of dredgings).

In recent years, dredged materials have not been deposited at the site. In a recent appraisal (2016) Natural England stated that this area of the Inner Thames Marshes SSSI was assessed as being in 'unfavourable declining' condition 'and the recommencement of the deposition of dredged material will help restore the SSSI unit back to favourable condition'.

The PLA has recently licensed the continued operation of the site to Land and Water Remediation Limited (the operator) for the continued deposit of dredged material. Prior to this, infilling was undertaken by another company on behalf of the PLA from 1992 to 2012. The permit was transferred from the PLA to the operator in late 2017.

In the past, the Environment Agency considered that the Landfill Directive did not apply to silt lagoons. However, notwithstanding the previous regulatory position, the Environment Agency has confirmed that the permanent deposit of non-hazardous dredgings at the site comprises the operation of a landfill site and this variation will change the site to a non-hazardous landfill for the deposit of non-hazardous dredgings and inert wastes.

The schedules specify the changes made to the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Original permit determined WML 80558 (EPR/FP3997NV)	01/12/05	Original permit issued to Port of London Authority
Permit modified WML 80558 (EPR/FP3997NV/V002)	28/03/07	Increase in accepted volume of waste
Application EPR/FB3701XY/T001 (full transfer of permit WML 80885)	Duly made 03/11/17	Application to transfer the permit from the Port of London Authority in full to Land & Water Remediation Limited.
Transfer determined EPR/FB3701XY	15/11/17	Full transfer of permit complete. Permit transferred from the Port of London Authority to Land & Water Remediation Limited

Status log of the permit		
Description	**Date**	**Comments**
Application received EPR/FB3701XY/V002 (variation and consolidation)	Duly made 11/01/18	Application to import additional wastes to restore the site to provide an appropriate habitat and / or environment for protected species
Additional information received	11/01/18	Additional Information regarding the Restoration Plan (dated 24/11/17).
Additional information received	11/01/18	Additional information regarding the financial provisions, flood risk assessment and OPRA score (dated 22/12/17).
Additional information received	11/01/18	Additional information regarding the flood risk assessment.
Additional information received	15/02/18	Additional information regarding new boreholes
Additional information received	04/05/18	Response to Schedule 5 Notice dated 27/02/18 concerning • Prior Investigation of Groundwater and Geological Barrier • HRA Conceptual Model as presented in Figure HRA 8 • Contaminant Transport Modelling • HRA and SRA Construction Quality Assurance (CQA) • HRA Requisite Surveillance • SRA Conceptual Model and Modelling • SRA target factors of safety for perimeter bunds • Surface Water Monitoring • Landfill Cap • Landfill Gas Monitoring • Topographical Monitoring • Environmental Risk Assessment and Management Systems • Accident Management • Conservation Sites • Waste Acceptance Criteria
Additional information received	10/07/18	Waste Acceptance Criteria for London Clay
Additional information received	11/07/18	Landfill Gas Monitoring Proposals.
Additional information received	13/07/18	Summary of Quality Assurance proposals for the restoration layer.
Additional information received	17/07/18	Clarification of Ecological Issues
Additional information received	18/07/18	Validation of C_0 values and review of Hydrological Risk Assessment.
Additional information received	26/07/18	Information regarding hardstanding material storage and use on site.
Additional information received	06/08/18	Downstream Groundwater Borehole information and proposed limits.
Additional information received	14/08/18	Updated Financial Provision Details.
Additional Information received	10/09/18	Clarification of the details regarding boreholes.
Additional Information received	12/09/18	Clarification of Site Plans

Status log of the permit		
Description	**Date**	**Comments**
Additional Information received	27/09/18	Site Planning Permission and Additional Information regarding the restoration plan
Additional Information received	27/09/18	Additional Groundwater Borehole and landfill gas monitoring
Additional Information received	05/10/18	Planning Authority Committee Report
Additional Information received	06/11/18	Revised Restoration Plan and Drawings
Variation determined EPR/FB3701XY/V002	04/12/18	Varied and consolidated permit issued in modern condition format
Application EPR/FB3701XY/V003 (variation and consolidation)	Duly made 26/08/20	Application to increase the annual waste input rate from 350,000 tonnes to 750,000 tonnes and add waste code 19 02 03.
Variation determined EPR/FB3701XY Billing reference: DB3804SS	21/10/2020	Varied permit issued.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/FB3701XY

Issued to

Land & Water Remediation Limited ("the operator")

whose registered office is

Numeric House
98 Station Road
Sidcup
Kent
DA15 7BY

company registration number **04561112**

to operate a regulated facility at

Silt Lagoons at Rainham and Wennington Marshes
Cold Harbour Lane
Rainham
RM13 9YQ

to the extent set out in the schedules.

The notice shall take effect from 21/10/2020

Name	Date
David Griffiths	**21/10/2020**

Authorised on behalf of the Environment Agency

Schedule 1

Only the following conditions have been varied by the consolidated permit EPR/FB3701XY as a result of the application made by the operator.

- Table S1.3, as referenced in condition 2.4.1, has been varied to update improvement programme timescales and link IC 04 to PO 02.
- Table S1.4, as referenced in condition 2.5.1, has been varied to include a new requirement for approved stability action plans and procedures to be submitted prior to the increase in annual waste input rate taking effect.
- Table S1.5, as referenced in condition 2.7.8, has been varied to amend the annual waste input rate from 350,000 tonnes to 750,000 tonnes.
- Tables S2.1 and S2.2, as referenced in conditions 2.7.1 and 2.7.2, have been varied to include waste code 19 02 03.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/FB3701XY

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/FB3701XY/V003 authorising,

Land & Water Remediation Limited ("the operator"),

whose registered office is

Numeric House
98 Station Road
Sidcup
Kent
DA15 7BY

company registration number **04561112**

to operate an installation at

Silt Lagoons at Rainham and Wennington Marshes
Cold Harbour Lane
Rainham
RM13 9YQ

to the extent authorised by and subject to the conditions of this permit.

Name	Date
David Griffiths	**21/10/2020**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Finance

1.2.1 The financial provision for meeting the obligations under this permit set out in the agreement made between the operator and the Environment Agency dated 04/12/18 shall be maintained by the operator throughout the subsistence of this permit and the operator shall produce evidence of such provision whenever required by the Environment Agency.

1.2.1 The operator shall ensure that the charges it makes for the disposal of waste in the landfill cover all of the following:

(a) the costs of setting up and operating the landfill;

(b) the costs of the financial provision required by condition 1.2.1; and

(c) the estimated costs for the closure and aftercare of the landfill.

1.3 Energy efficiency

1.3.1 The operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) Review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) Implement any appropriate measures identified by a review.

1.4 Efficient use of raw materials

1.4.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.5 Avoidance, recovery and disposal of wastes produced by the activities

1.5.1 The operator shall:

(a) take appropriate measures to ensure that waste produced by the activities is avoided or reduced, or where waste is produced it is recovered wherever practicable or otherwise disposed of in a manner which minimises its impact on the environment;

(b) review and record at least every four years whether changes to those measures should be made; and

(c) take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1, table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1, table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1, table S1.4 have been completed.

2.6 Landfill Engineering

2.6.1 No construction of any new cell of the landfill shall commence until the operator has submitted construction proposals and the Environment Agency has confirmed that it is satisfied with the construction proposals.

2.6.2 Where the operator proposes to construct any new cell other than the first cell, but proposes no change from the design of the most recently approved cell which could have any impact on the performance of any element of the design, no construction of the new cell shall commence until the operator has submitted a cell layout drawing and the Environment Agency has confirmed that it is satisfied with the cell layout drawing.

2.6.3 The construction of a new cell shall take place only in accordance with the approved construction proposals unless:

(a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or

(b) a change has otherwise been agreed in writing by the Environment Agency.

2.6.4 No disposal of waste shall take place in a new cell until the operator has submitted a CQA Validation Report and the Environment Agency has confirmed that it is satisfied with the CQA Validation Report.

2.6.5 No construction of landfill infrastructure shall commence until the operator has submitted relevant construction proposals or a written request to use previous construction proposals and the Environment Agency has confirmed that it is satisfied with the construction proposals.

2.6.6 The construction of the landfill infrastructure shall take place only in accordance with the approved construction proposals unless:

(a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or

(b) a change has otherwise been agreed in writing by the Environment Agency.

2.6.7 The operator shall submit a CQA Validation Report within four weeks of the completion of the construction of the relevant landfill infrastructure, or other time period agreed in writing with the Environment Agency.

2.6.8 Where pollution controls are immediately necessary to prevent an incident or accident, then conditions 2.6.5 and 2.6.6 do not apply and the relevant landfill infrastructure may be constructed, provided that the construction proposals are submitted to the Environment Agency as soon as practicable.

2.6.9 For the purposes of conditions 2.6.1, 2.6.2, 2.6.4 and 2.6.5, the Environment Agency shall be deemed to be satisfied where it has not, within the period of four weeks from the date of receipt of the relevant construction proposals or CQA Validation Report, either:

(a) confirmed whether or not it is satisfied; or

(b) informed the operator that it requires further information.

2.6.10 Where the Environment Agency has required further information under condition 2.6.9(b), the Environment Agency shall be deemed to be satisfied where it has not, within the period of four weeks from the date of receipt of the further information, either:

(a) confirmed whether or not it is satisfied; or

(b) informed the operator that it requires further information.

2.7 Waste acceptance

2.7.1 Wastes shall only be accepted for disposal if:

(a) they are listed in schedule 2, table S2.1; and

(b) they are non-hazardous and inert waste; and

(c) they are not whole used tyres (other than bicycle tyres and tyres with an outside diameter of more than 1400mm); and

(d) they are not shredded used tyres; and

(e) they are not liquid waste (including waste waters but excluding sludge and carrier waters); and

(f) they are not chemical substances from research and development or teaching activities, for example laboratory residues, which are unidentified and/or which are new and whose effects on man and/or the environment are unknown; and

(g) all the relevant waste acceptance procedures have been completed; and

(h) they fulfil the relevant waste acceptance criteria; and

(i) they have not been diluted or mixed solely to meet the relevant waste acceptance criteria; and

(j) they are wastes which have been treated, except for: inert wastes for which treatment is not technically feasible; or it is waste other than inert waste and treatment would not reduce its quantity or the hazards which it poses to human health or the environment; and

(k) they are wastes with a code beginning with 07 05 and 16 03, they shall exclude waste medicinal products and pharmaceutically active waste materials arising from their manufacture.

2.7.2 Wastes shall only be accepted for restoration where:

(a) they are listed in schedule 2, table S2.2; and

(b) they are accepted in accordance with a restoration plan approved in writing by the Environment Agency.

2.7.3 Where the operator is not the producer of the waste, the operator shall:

(a) visually inspect without unloading it, waste that is not in an enclosed container or enclosed vehicle on arrival at the landfill and waste at the point of deposit; and

(b) be satisfied that the waste conforms to the requirements of condition 2.7.1.

2.7.4 Where the operator is the producer of the waste, the operator shall visually inspect waste at the point of dispatch and shall be satisfied that the waste conforms to the requirements of condition 2.7.1.

2.7.5 Where the operator has taken samples to establish that the waste is in conformity with the documentation submitted by the holder then the samples taken shall be retained for at least one month and results of any analysis for at least two years.

2.7.6 Where the operator is not the producer of the waste, the operator on accepting each delivery of waste shall provide a receipt to the person delivering it.

2.7.7 The total quantity of waste that shall be deposited in the landfill shall be limited by the pre-settlement levels shown on the drawing provided in accordance with improvement condition IC 06.

2.7.8 The quantity of waste that is deposited or recovered in the landfill in any year shall not exceed the limits in schedule 1, table S1.5.

2.7.9 The operator shall maintain and implement a system which ensures that a record is made of the quantity, characteristics, date of delivery and, where practicable, origin of any waste that is received for disposal or recovery and of the identity of the producer, or in the case of municipal waste and multiple collection vehicles, of the collector of such waste. Any information regarded by the operator as commercially confidential shall be clearly identified in the record.

2.8 Closure and aftercare

2.8.1 The operator shall maintain a closure and aftercare management plan.

2.9 Landfill gas management

2.9.1 The operator shall take appropriate measures, including, but not limited to, those specified in any approved landfill gas management plan, to:

(a) control the migration of landfill gas.

2.9.2 The operator shall:

(a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a revised landfill gas management plan;

(b) implement the revised landfill gas management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 The limits in schedule 3 shall not be exceeded.

3.1.2 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3, table S3.1.

3.1.3 The operator shall prevent the input of any hazardous substances from the activities into groundwater.

3.1.4 The operator shall submit to the Environment Agency a review of the Hydrogeological Risk Assessment:

(a) between nine and six months prior to the fourth anniversary of the granting of the permit; and

(b) between nine and six months prior to every subsequent six years after the fourth anniversary of the granting of the permit.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used

appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring and any other actions specified in the following tables in schedule 3 to this permit:

(a) Point source emissions specified in tables S3.1;

(b) Groundwater specified in tables S3.2 and S3.5;

(c) Landfill gas specified in tables S3.3, S3.4 and S3.6; and

(d) Surface water specified in table S3.7.

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.5.3 A topographical survey of the site referenced to ordnance datum shall be carried out and shall be used to produce a plan of a scale adequate to show the surveyed features of the site:

(a) annually; and

(b) prior to the disposal of waste in any new cell or new development area of the landfill; and

(c) following closure of the landfill or part of the landfill.

3.6 Pests

3.6.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.

3.6.2 The operator shall:

(a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution hazard or annoyance from pests;

(b) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) the results of groundwater monitoring;

(ii) sub-surface landfill gas monitoring;

(iii) leachate levels, quality and quantities;

(iv) landfill gas generation and collection;

(v) waste types and quantities;

(vi) the specification and as built drawings of the basal, sidewall and capping engineering systems.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 A report or reports on the performance of the activities over the previous year ('the annual report') shall be submitted to the Environment Agency by 31st January each year or such other date as may be agreed in writing by the Agency, with the exception of 4.2.2(c) that must be provided by the end of February each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the risk assessments submitted in relation to this installation and any agreed amendments thereto. The review will include written descriptions of the improvements made to operational performance during the year, action plans developed and planned improvements for the coming year;

(b) the energy consumed at the site, reported in the format set out in schedule 4 table S4.3;

(c) the annual production/treatment set out in schedule 4, table S4.2;

(d) the topographical surveys required by condition 3.5.3 other than those submitted as part of a CQA validation report;

(e) the volumetric difference (reported in cubic metres) between the most recent topographical survey and the previous annual topographical survey i.e. the additional volume of the landfill void that is occupied by waste;

(f) an assessment of the settlement behaviour of the landfill body based on the difference between the most recent topographical survey and previous annual topographical survey for the areas of the landfill which did not receive waste between the surveys;

(g) a calculation of the remaining capacity (reported in cubic metres) derived from the pre-settlement contours and the most recent topographical survey;

(h) a plan(s) ('the monitoring and extraction point plan – MEPP') showing the locations of existing and any new leachate and landfill gas extraction and monitoring points.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4, table S4.1;

(b) using the forms specified in schedule 4, table S4.4 or other reporting format as agreed in writing with the Environment Agency; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.2.5 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

4.3.1 In the event:

(a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

(i) inform the Environment Agency;

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident; and

(iii) take the measures necessary to prevent further possible incidents or accidents.

(b) of a breach of any permit condition the operator must immediately—

(i) inform the Environment Agency; and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time.

(c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.4 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities				
Activity reference	**WFD Annex I and II operations (where applicable)**	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
A1	D5 – Specially engineered landfill and R5, R10 – Land treatment resulting in benefit to agriculture or ecology	Section 5.2 Part A(1)(a), The disposal of waste in a landfill.	Landfill for non-hazardous waste including inert waste and landfill restoration	Receipt, handling, storage, disposal and recovery of wastes, consisting of the types and quantities specified in condition 2.7, as an integral part of landfilling.
Directly Associated Activities				
A2	D15 - Storage pending any of the operations numbered D 1 to D 14 (excluding temporary storage, pending collection, on the site where the waste is produced)	-	Temporary storage of waste in the drying area.	Only wastes to be disposed of in the landfill.
A3	R13 - Storage of waste pending any of the operations numbered R 1 to R 12 (excluding temporary storage, pending collection, on the site where the waste is produced).	-	Temporary storage of waste for restoration	Only wastes consisting of the types and quantities specified in condition 2.7, as an integral part of landfilling.
A4	D6 – release to water body except seas/ oceans	-	Management and discharge of site drainage from the landfill.	From surface water management system to point of entry to controlled waters.

Table S1.1 activities				
Activity reference	**WFD Annex I and II operations (where applicable)**	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
A5	N/A	-	Storage of fuel for operation of plant and equipment.	Fuel storage tank.
A6	N/A	-	Storage and use of materials to make roads and paths	Locations shown on the drawing entitled 'Indicative future tracks and areas of hard standing' included with the letter submitted to the Environment Agency on 26/07/18 as incorporated into Table S1.2 or as otherwise agreed in writing with the Environment Agency. Only wastes consisting of the types and quantities specified in condition 2.7, as an integral part of landfilling.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application (EPR/FB3701XY/V002)	Proposed Operations referenced in the in response to section 3a – Technical Standards, Table 3 and 3b – General Requirements, Part C of the application form	29/09/17
	Environmental Setting and Installation Design (ESID) Report – Appendix E (except Table ESID 2 and 3)	29/09/17
	Management Systems – Appendix J	29/09/17
Response to Schedule 5 Notice dated 27/02/18	Response to question 5 detailing Groundwater Monitoring and Action Plan, and Letter regarding Interim groundwater quality compliance limits	04/05/18 06/08/18
Response to Schedule 5 Notice dated 27/02/18	Response to question 8 regarding Surface Water Monitoring and Action Plan	04/05/18
Response to Schedule 5 Notice dated 27/02/18	Response to question 12 regarding an addition to the Environmental Management Systems	04/05/18
Response to Schedule 5 Notice dated 27/02/18	Response to question 13 regarding Accident Management Plan.	04/05/18

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Response to Schedule 5 Notice dated 27/02/18	Response to question 14 regarding Ecology and Conservation	04/05/18
Response to Schedule 5 Notice dated 27/02/18	Schedule 5 response to Question 15, and Additional Information regarding Waste Acceptance Criteria (WAC).	04/05/18 10/07/18
Additional information	Letter regarding gas monitoring, Monitoring Staged Approach Points 1 - 6 and Table LFGRA 2 (excluding Frequency) only	11/07/18
Additional information	Email regarding Ecology Protection	17/07/18
Additional information	Letter regarding Importation, Storage and Use of Hardstanding Materials	26/07/18
Additional Information	Site Monitoring Plan (Reference LWS/RA/08-18/20727 dated 27/09/18)	27/09/18
Additional information	Restoration Plan and Drawing (reference LWS/RA/AW/5544/01/REST/V2, dated November 2018) excluding Appendix REST E concerning the construction controls	06/11/18

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC 01	The operator shall submit a written report of a review of surface water monitoring to the Environment Agency for written approval. The report shall include (but not be limited to): • A review of the surface water monitoring data for the twelve month period from variation issue against the interim compliance limits set out in Table S3.1; • Proposals for revised compliance limits; • Proposals for revised control limits; and • Requirements for additional infrastructure and on-going management of the surface water system. Once approved and from the date stipulated by the Environment Agency, the report shall be implemented in accordance with the agreed timescales, subject to such amendments or additions as notified by the Environment Agency.	02/03/20
IC 02	The operator shall submit a written report of a review of groundwater monitoring to the Environment Agency for written approval. The report shall include (but not be limited to): • A review of the groundwater monitoring data for the twelve month period from variation issue against the interim compliance limits set in Table S3.2;	02/03/20

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
	• Proposals for revised compliance limits; • Proposals for revised control limits; and • Requirements for additional infrastructure and on-going management of the groundwater system. Once approved and from the date stipulated by the Environment Agency, the report shall be implemented in accordance with the agreed timescales, subject to such amendments or additions as notified by the Environment Agency.	
IC 03	The operator shall submit a written report of a review of gas monitoring to the Environment Agency for written approval. The report shall include (but not be limited to): • A review of the landfill gas monitoring data for the twelve month period from variation issue against the interim compliance limits set in Table S3.3; • Proposals for revised compliance limits; and • Proposals for revised action levels. Once approved and from the date stipulated by the Environment Agency, the report shall be implemented in accordance with the agreed timescales, subject to such amendments or additions as notified by the Environment Agency.	04/05/20
IC 04	The operator shall submit a plan to the Environment Agency for approval that includes proposals for undertaking annual stability inspections by a suitably qualified person and an action plan setting out the proposed remedial actions that could be undertaken in the event that instability is observed in the outer side slopes and those adjacent to watercourses. Once approved and from the date stipulated by the Environment Agency, the report shall be implemented in accordance with the agreed timescales, subject to such amendments or additions as notified by the Environment Agency. **The information required for IC 04 will be superseded by the submission for PO 02 (table S1.4). If PO 02 is not completed then the requirements of IC 04 still apply for the original annual waste input rate of 350,000 tonnes.**	04/03/21
IC 05	The operator shall submit a report in writing detailing the following for the installation and sampling of borehole BH 05: • Confirmation that it was installed in agreed location as per drawing LWS/RA/09-18/20799 dated 27/09/18 unless otherwise agreed in writing with the Environment Agency; • Frequency of monitoring; • Monitoring parameters; and • Proposed interim compliance levels. Once approved and from the date stipulated by the Environment Agency, the report shall be implemented in accordance with the agreed timescales, subject to such amendments or additions as notified by the Environment Agency.	06/05/19

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC 06	The operator shall submit a revised plan (reference 2423/014) showing the pre-settlement levels prior to the placing of the restoration wastes.	Completed 24/01/19
IC 07	The operator shall update the Environment Management System (EMS) with the Waste Acceptance Procedure for the dredging waste.	Completed 11/01/19

Table S1.4 Pre-operational measures for future development		
Reference	**Operation**	**Pre-operational Measures**
PO 01	Disposal of Waste in all phases	No deposit of waste shall take place in any cell/phase until all vegetation within that cell/phase has been removed.
PO 02	Disposal of waste beyond 350,000 tonnes per annum	The operator shall submit a plan to the Environment Agency for approval that includes proposals for undertaking annual stability inspections by a suitably qualified person and an action plan setting out the proposed remedial actions that could be undertaken in the event that instability is observed in the outer side slopes and those adjacent to watercourses. Once approved and from the date stipulated by the Environment Agency, the report shall be implemented in accordance with the agreed timescales, subject to such amendments or additions as notified by the Environment Agency.

Table S1.5 Annual waste input limits	
Category	**Limit Tonnes/ Year**
Non-hazardous waste	750,000*
Inert waste	750,000*
Waste for restoration	750,000*
Total (of all categories)	**750,000***
* Annual waste inputs limits are restricted to 350,000 tonnes until PO 02 has been completed.	

Schedule 2 – List of permitted wastes

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	Concrete
17 01 02	Bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes - tunnel arisings or wastes from other excavations only

Table S2.2 Permitted waste types for restoration	
Waste code	**Description**
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes - tunnel arisings or wastes from other excavations only

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (incl unit) ***	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
SW 03 identified on Plan LWS/RA/08-18/20727 dated 27/09/18	Suspended Solids	Surface Water	75 mg/l	Spot Sample	Monthly for 12 months then quarterly if agreed in writing with the Environment Agency	As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency
	Ammoniacal Nitrogen		2.5 mg/l			
	Oil		No visible oil			
	Copper		0.0055 mg/l			
	Lead		0.0011 mg/l			
	Nickel		0.0064 mg/l			
	Sulphate		398 mg/l			
	Selenium		0.0048 mg/l			
	Arsenic		0.0013 mg/l			
* Interim limits until improvement condition IC 01 is completed						

Table S3.2 Groundwater – emission limits and monitoring requirements					
Monitoring point reference	**Parameter**	**Limit (including unit)***	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
BH 03 identified on Plan LWS/RA/08-18/20727 dated 27/09/18	Arsenic	0.110 mg/l	Spot Sample	Monthly for 12 months then quarterly if agreed in writing with the	As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency
	Chromium	0.0031 mg/l			
	Selenium	0.0034 mg/l			
	Sulphate	295 mg/l			

Table S3.2 Groundwater – emission limits and monitoring requirements					
Monitoring point reference	**Parameter**	**Limit (including unit)***	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
BH 04 identified on Plan LWS/RA/08-18/20727 dated 27/09/18	Arsenic	0.014 mg/l		Environment Agency	
	Chromium	0.0044 mg/l			
	Selenium	0.009 mg/l			
	Sulphate	295 mg/l			
* Interim limits until improvement condition IC 02 is completed					

Table S3.3 Landfill gas in waste monitoring – limits and monitoring requirements				
Monitoring point Ref. /Description	**Parameter**	**Limit (including units)***	**Monitoring frequency**	**Monitoring standard or method**
LFGMP 1 to 13 identified on Plan LWS/RA/08-18/20727 dated 27/09/18	Methane	1 %v/v	Monthly for 12 months then quarterly if agreed in writing with the Environment Agency	As per LFTGN03 June 2013 or such other subsequent guidance as may be agreed in writing with the Environment Agency.
	Carbon Dioxide	1.5 %v/v		
	Oxygen	no limit		
	Atmospheric pressure	no limit		
	Differential pressure	no limit		Record whether the ground is: waterlogged frozen snow covered
* Interim limits until improvement condition IC 03 is completed				

Table S3.4 Landfill gas emissions from capped surfaces for cells that have accepted non-hazardous biodegradable waste – monitoring requirements			
Monitoring point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring Standard or method**
Whole site	Total Methane emission	As agreed with the Environment Agency	As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.
Uncapped areas	Methane concentration	Every 12 months	As agreed with the Environment Agency based on the wording of revised LFTGN 07 or landfill sector guidance or such other subsequent guidance as may be agreed in writing with the Environment Agency.

Table S3.5 Groundwater – other monitoring requirements			
Monitoring Point Ref./Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**
Up gradient MEPP	Water level, Ammoniacal Nitrogen, Chloride, Electrical Conductivity, pH	Quarterly	As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency
	Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Sodium, Total Alkalinity, Total Sulphates, Zinc	Annually	
	Hazardous substances, plus Antimony, Barium, DOC, Fluoride, Molybdenum, Selenium	Annually for first six years of operation	
Down or cross gradient MEPP	Water level, Ammoniacal Nitrogen, Chloride, Electrical Conductivity, pH	Quarterly	As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency After the initial 6 year monitoring period for hazardous substances, if the results of quarterly or annual monitoring suggest an increase in contamination, the operator shall also undertake a full leachate hazardous substances screen.
	Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Sodium, Total Alkalinity, Total Sulphates, Zinc	Annually	
	Hazardous substances, plus Antimony, Barium, DOC, Fluoride, Molybdenum, Selenium	Annually for first six years of operation then every two years	

Table S3.5 Groundwater – other monitoring requirements			
Monitoring Point Ref./Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**
MEPP	Base of monitoring point (mAOD)	Annually	--

Table S3.6 Landfill gas – other monitoring requirements				
Monitoring Point Ref./Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Spike bar survey	Methane Carbon Dioxide Oxygen Carbon Monoxide Atmospheric pressure	Monthly for 12 months then quarterly if agreed in writing with the Environment Agency	Calibrated handheld monitoring instrument	For cells or phases which have no active gas extraction. Spike bar survey (at 8 spikes per hectare) or other technique agreed in writing by Environment Agency.
In waste gas monitoring boreholes in cells for non-hazardous waste	Hydrogen Sulphide	Quarterly	Calibrated handheld monitoring instrument or Tedlar Bag sample in accordance with LFTGN04 June 2014 or other such subsequent guidance as may be agreed in writing with the Environment Agency or a method agreed with the Environment Agency.	For cells or phases which have no active gas extraction. Concentrations of hydrogen sulphide shall be assessed in accordance with the gas and odour management plans
One in waste borehole per cell	Trace gas	Annually	Trace gas analysis in accordance with LFTGN04 June 2014 or a trace gas characterisation method agreed with the Environment Agency or such other subsequent guidance as may be agreed in writing with the Environment Agency.	The concentration of trace gas components shall be assessed against the assumptions made in the Landfill gas risk assessment and dispersion modelling.

Table S3.7 Surface water – other monitoring requirements				
Monitoring Point Ref./Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
MEPP	Ammoniacal Nitrogen Chloride Electrical conductivity pH Suspended solids Visual Oil and Grease	Monthly for 12 months then quarterly if agreed in writing with the Environment Agency.	Spot sample	As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data		
Parameter	**Reporting period**	**Period ends**
Point source emission to water (other than sewer) As specified by schedule 3, table S3.1	Every 3 months	31 March, 30 June, 30 September, 31 December
Emission to groundwater As specified by schedule 3, table S3.2	Every 3 months	31 March, 30 June, 30 September, 31 December
Landfill gas in internal monitoring boreholes As specified by schedule 3, table S3.3	Every 3 months	31 March, 30 June, 30 September, 31 December
Emission of landfill gas from capped surfaces As specified by schedule 3, table S3.4	Every 12 months	31 December
Other groundwater monitoring As specified by schedule 3, table S3.5	Every 3 months	31 March, 30 June, 30 September, 31 December
Other Landfill gas monitoring As specified by schedule 3, table S3.6 Trace gas monitoring	Every 3 months Every 12 months	31 March, 30 June, 30 September, 31 December 31 December
Other surface water monitoring As specified by schedule 3, table S3.7	Every 12 months	31 December
Meteorological data Landfill Directive, annex III, section 2	Every 12 months	31 December

* - where the reporting period is 12 months, you may submit this information as part of the ‘annual report’ required by condition 4.2.2.

Table S4.2: Annual production/treatment	
No reporting required	

Table S4.3 Performance Parameters			
Parameter	**Frequency of assessment**	**Annual total**	**Unit**
Energy used (including for leachate treatment)	Annually		MWh of electricity or natural gas

Table S4.4 Reporting Forms		
Media/parameter	**Reporting Format**	**Date of Form**
Controlled water	Form Water 1 or other reporting format to be agreed in writing with the Environment Agency	04/12/18

Table S4.4 Reporting Forms		
Media/parameter	**Reporting Format**	**Date of Form**
Groundwater	Form Groundwater 1 or other reporting format to be agreed in writing with the Environment Agency	04/12/18
Landfill gas	Form LFG 1 or other reporting format to be agreed in writing with the Environment Agency	04/12/18
Waste Return	E-waste Return Form	--
Landfill topographical surveys and interpretation	Reporting format to be agreed in writing with the Environment Agency	--

Schedule 5 – Notification

This page outlines the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any incident or accident which significantly affects or may significantly affect the environment	
To be notified within 24 hours of detection	
Date and Time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B to be supplied as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“annually” means once every year.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“background concentration” means such concentration of that substance as is present in:

- For emissions to surface water, the surface water quality up-gradient of the site; or
- For emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge; or
- For emissions of landfill gas, the ground or air outside the site and not attributable to the site.

“cell layout drawing” means:

(b) A drawing or drawings of the proposed new cell that illustrate(s) in sufficient detail:

(i) the location of the new cell on the site;

(ii) the proposed level (Above Ordnance Datum) of the base of the excavation;

(iii) the proposed finished levels of all containment and leachate drainage layers;

(iv) the positions of leachate management infrastructure; and

(v) the positions of landfill gas infrastructure (if appropriate).

(c) A detailed written explanation of any minor design changes from the most recently approved cell that result from the new cell layout. This would include, for example:

(vi) changes to slope length and gradient within the cell;

(vii) new leachate or landfill gas infrastructure construction design;

(viii) slope stability issues such as new basal excavation level; and/or

(ix) depth of waste.

“construction proposals” means written information, at a level of detail appropriate to the complexity and pollution risk, on the design, specifications of materials selected, stability assessment (where relevant) and the construction quality assurance (CQA) programme in relation to the New Cell or Landfill Infrastructure.

“CQA Validation Report” means the final “as built” construction and engineering details of the New Cell or of the Landfill Infrastructure. It must provide a comprehensive record of the construction and must include, where relevant:

- The results of all testing required by the CQA programme - this must include the records of any failed tests with a written explanation, details of the remedial action taken, referenced to the appropriate secondary testing;
- Plans showing the location of all tests;
- “As-built” plans and sections of the works;
- Copies of the site engineer’s daily records;
- Records of any problems or non-compliances and the solution applied;

- Any other site specific information considered relevant to proving the integrity of the New Cell or Landfill Infrastructure;
- Validation by a qualified person that all of the construction has been carried out in accordance with the Construction Proposals.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations 2016, SI 2016 No.1154 and words and expressions used in this permit which are also used in those Regulations have the same meanings as in those Regulations.

“exceeded” means that a value is above a permitted limit, or where a range of values or a minimum value is set as a permitted limit it means a value outside that range or below the minimum value, whichever is applicable.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“hazardous substances” as defined by the Environmental Permitting (England and Wales) Regulations 2016, SI 2016 No.1154, schedule 22 and listed in our Hydrogeological risk assessment guidance.

"inert waste" means waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater

“landfill Infrastructure” means any specified element of the:

- permanent capping;
- temporary capping (i.e. engineered temporary caps not cover materials);
- leachate abstraction systems;
- leachate transfer, treatment and storage systems;
- surface water drainage systems;
- leachate monitoring wells;
- groundwater monitoring boreholes;
- landfill gas monitoring boreholes;
- landfill gas management systems;
- lining within the installation.

within the site.

“LFTGN 05” means Environment Agency Guidance for monitoring enclosed landfill gas flares.

“LFTGN 07” means Environment Agency Guidance on monitoring landfill gas surface emissions.

“LFTGN 08” means Environment Agency Guidance for monitoring landfill gas engines.

“liquids” means any liquid other than leachate within the engineered landfill containment system.

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

“medicinal product” means any medicine licensed by the Medicines and Healthcare products Regulatory Agency (MHRA) or their predecessors under the Medicines Act 1968, section 130.

“MEPP” Monitoring and extraction point plan, required by condition 4.2.2(h) to specify extraction points and routine monitoring locations.

“new cell” means any new cell, part of a cell or other similar new area of the site where waste deposit is to commence after issue of this permit and can comprise:

- groundwater under-drainage system;
- permanent geophysical leak location system;
- leak detection layer;
- sub-grade;
- barriers;
- liners;
- leachate collection system;
- leachate abstraction system;
- separation bund/layer;
- cell or area surface water drainage system;
- side wall subgrade and containment systems;

for the New Cell.

“no impact” means that the change made to the construction process will not affect the agreed design criteria, specification or performance in a way that has a negative effect.

“pests” means Birds, Vermin and Insects.

“previous year” means the 12 month period preceding the month the annual report is submitted in.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“relevant waste acceptance procedures” means the procedure for the acceptance of waste at landfills and the associated sampling and test methods specified in the Council Decision Annex (2003/33/EC, European Council of 19 December 2002).

“relevant waste acceptance criteria” means the waste acceptance criteria and the associated sampling and test methods specified in the Council Decision Annex (2003/33/EC, European Council of 19 December 2002).

“review of the Hydrogeological Risk Assessment” means a written review of the hydrogeological risk assessment included in the Application, together with any other parts of the Application that addressed the requirements of the EP Regulations. The review shall assess whether the activities of disposal or tipping for the purpose of disposal of waste authorised by the permit continue to meet the requirements of the EP Regulations.

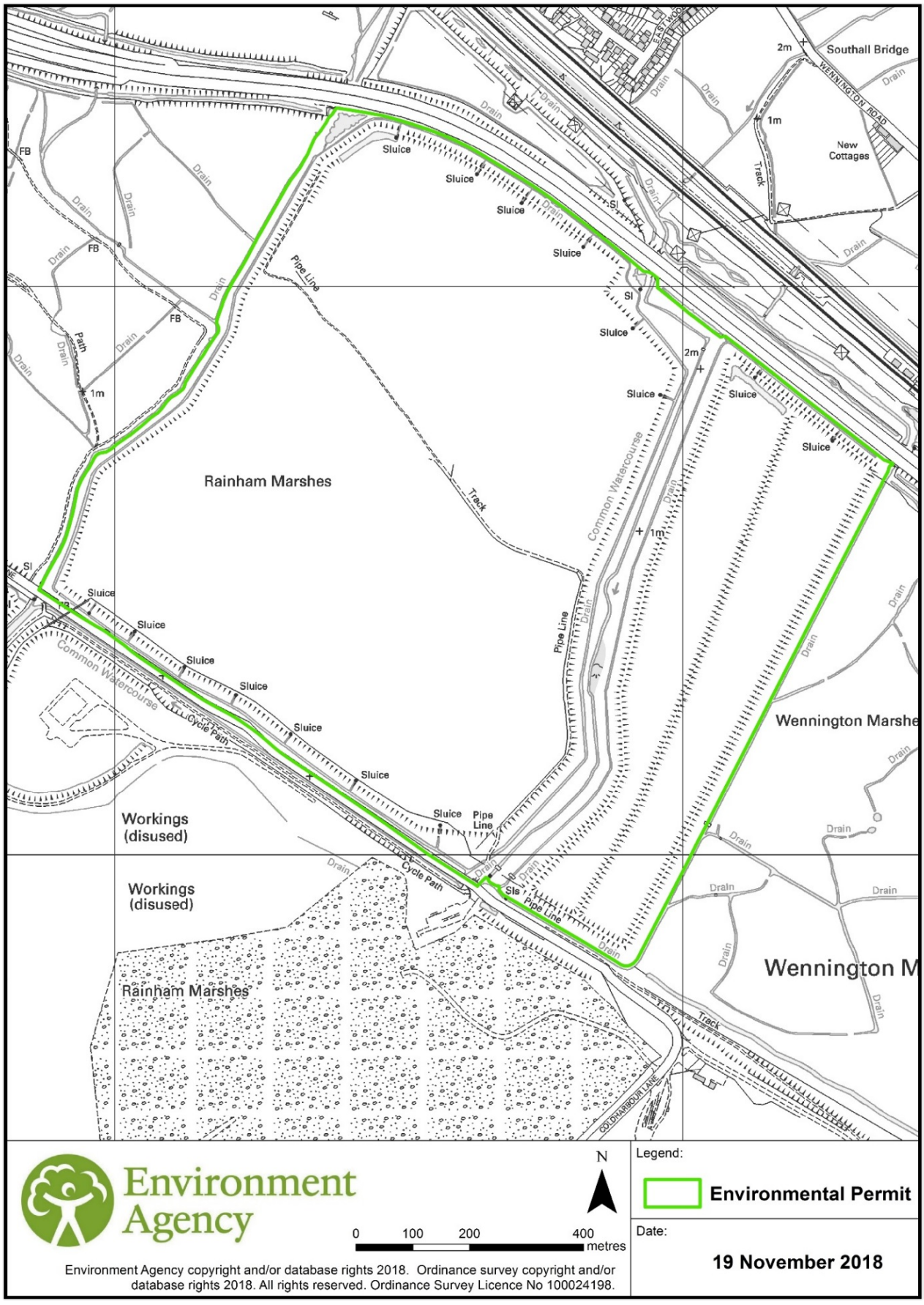
“sustainably extracted” means where suction can be applied to the extraction wells such that a flow rate of landfill gas, with a methane content capable of either being combusted, or treated by bio-oxidation, can be extracted without increasing the risk of air ingress to the waste or inducing aerobic degradation within the waste.

“waste code” - See “List of Wastes”.

“WFD” means Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste [and repealing certain Directives] – the Waste Framework Directive.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means the standards included in Environment Agency Guidance for Monitoring Enclosed Landfill Gas Flares LFTGN 05 or Guidance for Monitoring Landfill Gas Engine Emissions LFTGN 08.

Schedule 7 – Site plan



END OF PERMIT

creating a better place

Environment Agency

The Company Director and/or Secretary
Thames Materials Limited
The Coach House
Greys Green Business Centre
Henley on Thames
Oxon
RG9 4QG

Our ref: EPR/BB3709TU/A001

Date: 30 January 2015

Dear Sir or Madam

Your new environmental permit

Permit reference: EPR/BB3709TU/A001
Waste returns reference: EAWML 401566
Operator: Thames Materials Limited
Facility: Thames Materials, Skip Lane, Harvil Road, Harefield, Uxbridge. UB9 6RP

Our determination of your application for a permit is complete. We're satisfied that you can carry out your activities in accordance with the enclosed permit, without harm to the environment or human health. Please keep the permit in a safe place.

This letter contains web links to other documents. If you aren't able to access these phone our Customer Contact Centre for help on 03708 506 506.

Please look at the table below and note any of the things that apply to your permit.

If...	then..
you plan to keep your records at a site other than where the activity takes place	you need to let us know within 20 working days of receiving this letter.
your permit includes pre-operational or improvement conditions	check the deadlines for completing measures and make sure you carry them out by the times stated.
your permit includes standard rules	we've enclosed the rules set/s. We may change these in future but will let you know about any changes. You must make sure you're always following the latest rules set.
you're carrying out a waste operation or activity and need to submit quarterly waste returns on waste movements **Note:** This does not apply to permits that only have stand alone water discharge or groundwater activities.	you can get the forms you need from our website https://www.gov.uk/government/collections/national-operator-waste-returns When you complete your return use the waste returns reference above.
your permit includes an installation	we enclose a legal notice and information about reporting to the Pollution Inventory.
you need to submit other returns	send these to your area office. Speak to your area officer to check local arrangements.

You need to read our document **How to comply with your environmental permit** as this

Land Team, Permitting and Support Centre, Quadrant 2, 99 Parkway Avenue, Sheffield, S9 4WF
Phone: 03708 506 506
Email: enquiries@environment-agency.gov.uk
www.gov.uk/environment-agency

INVESTOR IN PEOPLE

will help you understand how to meet the conditions of the permit. You can find this on our website at https://www.gov.uk/government/publications/how-to-comply-with-your-environmental-permit

A local regulatory officer will visit you to assess compliance with your permit conditions.

There is an annual subsistence charge for your permit unless:

- your permit is only for discharges of sewage effluent where the maximum daily volume of discharge permitted is five cubic metres or less (this does not apply to trade effluent or any other type of discharge)
- or your permit is only for mobile plant, instead we will charge for each deployment.

The annual charge is due on demand in the year that we issue the permit and then on 1 April each year. The charge starts from the date we authorise the permit, unless there's a condition relating to a standalone water discharge which states a later start date. In that case we will charge for the discharge from the start date. If you need to know more about the subsistence charge please look at the charging guidance on our website at https://www.gov.uk/government/publications/environmental-permitting-ep-charges-scheme-april-2014-to-march-2015

Rights of appeal

If you're not happy with any permit condition that has been imposed by the permit you may appeal to the Secretary of State. You must make your appeal no later than six months after the permit issue date. Further information about making an appeal and the forms you will need are available from the Planning Inspectorate website or from the contact details below.

Environment Appeals, Enforcement and Specialist case work division, The Planning Inspectorate, 3/25 Hawk Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN. Phone: 0303 444 5584

Email: environment.appeals@pins.gsi.gov.uk

You must send written notice of the appeal and the documents listed below to the Secretary of State at the Planning Inspectorate address above. At the same time you must send us a copy of the notice and documents to

Victoria Balmer, Appeals Coordinator, Environment Agency, National Permitting Service, Knutsford Road, Latchford, Warrington, WA4 1HG.

Phone: 01925 542456 Email : victoria.balmer@environment-agency.gov.uk

The documents are:

- a statement of the grounds of appeal
- a copy of any relevant application
- a copy of any relevant environmental permit
- a copy of any relevant correspondence between the appellant and the regulator
- a copy of any decision or notice which is the subject matter of the appeal
- a statement indicating whether you wish the appeal to be in the form of a hearing or dealt with by way of written representations.

You may withdraw an appeal by notifying the Secretary of State in writing and sending a copy of that notification to us.

If you have any questions about this permit please phone our Customer Contact Centre on 03708 506 506. They will put you in touch with a local regulatory officer.

Yours sincerely

Kate Liversidge
Permitting Support Advisor

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Thames Materials Limited

Thames Materials
Skip Lane
Harvil Road
Harefield
Uxbridge
UB9 6RP

Permit number

EPR/BB3709TU

Thames Materials
Permit number EPR/BB3709TU

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

This permit allows the importation, storage and treatment of up to 500,000 tonnes of waste per year (with a storage capacity of 125,000 tonnes) in order to produce soil, soil substitutes and aggregates. Treatment is limited to sorting, separation, screening, crushing, and blending of waste.

The site is located in the Colne Valley which has a wide range of high-quality wetland habitats. The site is also within an Air Quality Management Area (AQMA) and is adjacent to two sites of scientific interest, namely Denham Look Wood, and Fray's Farm Meadow. Priority species at the site include Fern-leaved Hook-moss covering the permitted area.

This permit includes bespoke permit conditions to mitigate against the risk of airbourne and groundwater pollution from on site treatment activities via emission limits and monitoring requirements. The efficacy of these bespoke conditions will be kept under review and if the conditions do not prove effective we may seek to impose further controls or conversely minimise control measures. The list of waste to be taken into the site has been limited in line with Source Protection Zone (SPZ) 1 and 2 requirements that limit some wastes to be treated on an impermeable hardstanding with sealed drainage.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/BB3709TU/A001	Duly made 16/07/14	Application for treatment of waste to produce soil, soil substitutes and aggregate.
Additional information received	17/09/14	Response to EWC restrictions, copy of risk assessment, definition of hardstanding, surface water drainage.
Schedule 5 Notice response received	19/01/15	Schedule 5 notice sent to address groundwater and particulate matter mitigation measures.
Permit determined EPR/BB3709TU	29/01/15	Permit issued to Thames Materials Limited

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number

EPR/BB3709TU

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

Thames Materials Limited ("the operator"),

whose registered office is

The Coach House
Greys Green Business Centre
Henley on Thames
Oxon
RG9 4QG

company registration number **03045533**

to operate waste operations at

Thames Materials
Skip Lane
Harvil Road
Harefield
Uxbridge
UB9 6RP

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Derek Franklin	29/01/2015

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Avoidance, recovery and disposal of wastes produced by the activities

1.2.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.2.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.1; and

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions of substances not controlled by emission limits

3.1.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.1.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.1.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.2 Odour

3.2.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used

appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.3 Noise and Vibration

3.3.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Monitoring

3.4.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) surface water or groundwater specified in table S3.1;

(b) ambient air monitoring specified in table S3.2;

3.4.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.4.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.4.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

3.4.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2 unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.2 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.3 Notifications

4.3.1 The Environment Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(c) any change in the operator's name or address; and

(d) any steps taken with a view to the dissolution of the operator.

In any other case:

(e) the death of any of the named operators (where the operator consists of more than one named individual);

(f) any change in the operator's name(s) or address(es); and

(g) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

4.4.3 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities		
Activity reference	**Description of activities for waste operations**	**Limits of activities**
A1	**R13:** Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)	Treatment operations shall be limited to sorting, separation, screening, crushing, and blending of waste for recovery as a soil, soil substitute or aggregate.
	R3: Recycling or reclamation of organic substances which are not used as solvents.	All permitted wastes shall be stored and treated on hardstanding or on an impermeable surface with sealed drainage system.
	R5: Recycling or reclamation of other inorganic materials.	The recovery of non hazardous wastes by pre-treatment for incineration or co-incineration; treatment of slags or ashes; or in shredders of metal waste shall be no more than 75 tonnes per day. Waste types as specified in Table 2.1

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application form and supporting documents	Supporting documents: Competence scheme (TML/PartB2/3b); Environment management system summary sheets (TML/PartB2/3d); Site plans (TML/PartB2/5a); Non Technical summary (TML/PartB2/5c); Environmental Risk Assessment (TML/PartB2/6); EA environmental setting (TML/PartB2/6 i) ; Magic Map environmental setting (TML/PartB2/6 ii); Description of activities (TML/PartB4/3a) Excluding Risk assessment; list of wastes; OPRA score	30/05/14
Request for information response	Response to missing information on application submitted. Attachments included on the email response: - Process flow chart Excluding amended OPRA score & Site condition report (SCR)	16/07/14
Request for information response during determination	- Labelled diagram showing the different activities on site including storage areas for the different types/stockpiles of waste, machinery, weighbridge and offices - Clarification on oil storage tank location	20/08/14
Request for information response during determination	- Exclusion of waste codes - Definition of hardstanding - Amended copy of Risk Assessment	17/09/14
Request for information	- Material composition of hardstanding	19/09/14

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
response during determination	- TCM proof supplying original copies for 4TMNH & 4LNH	
Request for information response during determination	Determination - Amended OPRA spreadsheet and additional payment.	07/10/14
Request for information response during determination	Determination - Clarification on Industrial Emissions Directive (IED) compliance confirming that daily treatment capacity for waste type 10 01 02 will be limited <75 tonnes	11/11/14 & 26/11/14
Schedule 5 notice response during determination	- Particulate Matter Management Plan - Site Investigation Report to support Site Condition Report - Risk Assessment	19/01/15

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	The operator must submit a phased impermeable hardstanding construction plan with sealed drainage that is to be approved in writing by the Environment Agency.	29/03/2015
IC2	The operator shall carry out the improvements to the site surfacing and drainage in accordance with the plan approved in response to IC1 above.	29/07/2017
IC3	The operator shall submit a groundwater monitoring program, in accordance with LFTGN02 "Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water" including a plan (to scale locating borehole monitoring points with National Grid References); analytical parameters: monitoring frequency: monitoring standard or method in accordance with BS ISO 5667-11:2009 "Water quality. Sampling. Guidance on sampling of groundwaters" that is to be approved in writing by the Environment Agency	29/03/2015
IC4	The operator shall carry out groundwater monitoring in accordance with the plan approved in response to IC3 above	29/03/2015

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Permitted waste types and quantities	
Maximum quantity 500,000 tonnes per annum	
Exclusions **Wastes having any of the following characteristics shall not be accepted:** • **Consisting solely or mainly of dusts, powders or loose fibres** • **Hazardous wastes** • **Wastes in liquid form**	
Waste code	**Description**
01	**WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS**
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 02	**wastes from the preparation and processing of meat, fish and other foods of animal origin**
02 02 02	animal-tissue waste
10	**WASTES FROM THERMAL PROCESSES**
10 01	**wastes from power stations and other combustion plants (except 19)**
10 01 02	coal fly ash
10 11	**wastes from manufacture of glass and glass products**
10 11 12	waste glass other than those mentioned in 10 11 11
10 12	**wastes from manufacture of ceramic goods, bricks, tiles and construction products**
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10 13	**wastes from manufacture of cement, lime and plaster and articles and products made from them**
10 13 14	waste concrete and concrete sludge
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 07	glass packaging
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	**wood, glass and plastic**
17 02 02	glass
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03

17 05 08	track ballast other than those mentioned in 17 05 07
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 02	waste from desanding
19 08 99	stone filter media if free from sewage contamination only
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 05	glass
19 12 09	minerals (for example sand, stones)
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	**separately collected fractions (except 15 01)**
20 01 02	glass
20 02	**garden and park wastes (including cemetery waste)**
20 02 02	soil and stones

Schedule 3 – Emissions and monitoring

Table S3.1 Surface water or groundwater monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Groundwater As agreed in writing by the Environment Agency to include sampling locations and parameters	As agreed in writing by the Environment Agency	quarterly	BS ISO 5667-11:2009 Water quality. Sampling. Guidance on sampling of groundwaters	

Table S3.2 Ambient air monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
At a location agreed in writing with the Environment Agency that will obtain reliable and representative data on PM10 emissions from the waste management operations	Particulate matter less than 10 millionth of a metre in diameter (PM10)	Continuous – 24 hours per day, seven days per week	The equipment shall be operated to a procedure agreed in writing with the Environment Agency. The emissions management plan must include trigger levels and regular review cycles with an over riding aim to reduce PM10 emissions from the facility.	Monitoring equipment should meet the MCERTS Performance Standards for Indicative Ambient Particulate Monitors or similar standard agreed in writing with the Environment Agency. The equipment shall be calibrated in accordance with the manufacturer's recommendations or 6 monthly, whichever is first. The system must be managed and maintained by suitably trained personnel. The system must obtain representative data that must accurately represent PM10 levels produced by the site's activities.

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Ambient air monitoring Parameters as required by condition 4.2.3	As agreed in writing by the Environment Agency	Monthly	01 January 01 February 01 March 01 April 01 May 01 June 01 July 01 August 01 September 01 October 01 November 01 December
Emissions to water Parameters as required by condition 3.4.1	As agreed in writing by the Environment Agency to include sampling locations and parameters	Quarterly	01 January; 01 April; 01 July; 01 October

Table S4.2 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Particulate matter less than 10 millionth of a metre in diameter (PM10)	Form Particulate 1 or other form as agreed in writing by the Environment Agency	29/01/15
Emissions to water	As agreed in writing by the Environment Agency to include sampling locations and parameters.	29/01/15

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Facility: Skip Lane, Harvil Road, Harefield, Uxbridge,UB9 6RP **Form Number**: Particulate1

Reporting of particulates for the period from DD/MM/YYYY **to** DD/MM/YYYY

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
At a location agreed in writing with the Environment Agency that will obtain reliable and representative data on PM10 emissions from the waste management operations.	Particulate matter less than 10 millionth of a metre in diameter (PM10)	As agreed in writing with the Environment Agency	Continuous - 24 hours per day, seven days per week		BS EN 15267-3		

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
[3]For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
[4]The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed …… Date……..
(Authorised to sign as representative of Operator)

Schedule 6 – Interpretation

"accident" means an accident that may result in pollution.

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"Annex I" means Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"Annex II" means Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"authorised officer" means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

"emissions to land" includes emissions to groundwater.

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"groundwater protection zones 1 and 2" have the meaning given in the document titled "Groundwater Protection: Policy and Practice" published by the Environment Agency in 2006.

"hazardous waste" has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 No.894, the Hazardous Waste (Wales) Regulations 2005 No. 1806 (W.138), the List of Wastes (England) Regulations 2005 No.895 and the List of Wastes (Wales) Regulations 2005 No. 1820 (W.148).

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

"nearest sensitive receptors" means the nearest place to the composting operations where people are likely to be for prolonged or frequent periods. This term would therefore apply to dwellings (including any associated gardens) and to workplaces where workers would frequently be present. It does not apply to the operators of composting facilities or their staff while carrying out the composting operation as their health is covered by Health and Safety legislation.

"ozone-depleting substances" "ODS" means "controlled substances" contained in refrigeration, air-conditioning and heat pump equipment, equipment containing solvents, fire protection systems and fire extinguishers.

"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"R" means a recovery operation provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"Waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

"Waste Framework Directive" or "WFD" means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

"year" means calendar year ending 31 December.

Schedule 7 - Site plan



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END OF PERMIT

ENVIRONMENT AGENCY

Standard Permit for the Landfill Sector

Permit with introductory note

Pollution Prevention and Control Regulations 2000
Landfill Regulations 2002

Lafarge Aggregates Limited
Tyttenhanger Landfill
Coursers Road
London Colney
Hertfordshire

Permit number

BX3368PN

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Introductory note

This introductory note does not form a part of the Permit

The following Permit is issued under Regulation 6 of the Landfill (England and Wales) Regulations 2002 (S.I.2002 No.1559) ("the Landfill Regulations") and Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No.1973), as amended, ("the PPC Regulations") to operate an installation carrying out activities covered by the description in Section 5.2 A(1)(b) in Part 1 to Schedule 1 of the PPC Regulations, to the extent authorised by the Permit: i.e.

b) The disposal of waste in any other landfill to which the Landfill Regulations apply.

There may be some activities on the installation to which BAT applies because they are not Landfill activities. Therefore, in some sections of the Permit conditions require the Operator to use Best Available Techniques (BAT), in each of the aspects of the management of the installation, to prevent and where that is not practicable to reduce emissions. The conditions do not explain what is BAT. In determining BAT, the Operator should pay particular attention to the appropriate Horizontal guidance (H1 to H4) and other relevant guidance.

A non-technical description of the installation is given in the Application, but the main features of the installation are as follows

The landfill site is a new installation, which will be classified as an inert site, occupying the void from sand and gravel extraction. There is not a waste management licence for the installation, but the applicant has confirmed that planning permission has been granted.

The installation as shown on drawing number LAF/TT/09-03/11047, entitled 'The site location', is located approximately 5km south east of the centre of St Albans. The installation is a new site and only one directly associated activities, the transfer of water extracted from the void to the adjacent mineral workings. When the installation becomes operational it will only accept inert materials as defined within Regulatory Guidance Note 2 (RGN2) and those wastes described as inert in the Landfill Directive, with a total quantity of approximately 3.6 millions tonnes. The permit condition 2.1.4 restricts the waste input to no more than 600,000 tonnes per year.

The geology of the site comprises of two sand and gravel units, separated by a grey sandy boulder clay. Soil and clay overlie the upper sand and gravel. The lower sand and gravel is underlain directly by the Cretaceous Upper Chalk, causing hydraulically continuity between the two. Natural groundwater levels are above the quarried base of the site, with the groundwater in the upper sand and gravel flowing west and north in the chalk and lower sand and gravel. The Cretaceous Upper Chalk is classified as a major aquifer and part of the installation is located within the special interest area of a groundwater source protection zone.

Groundwater levels are to be depressed below the base of the void to enable the landfilling of waste. An engineered geological barrier is to be provided where the natural geological barrier is found not to be adequate to comply with the requirements of the regulations..

Note that the Permit requires the submission of certain information to the Agency (see Sections 4 and 5). In addition, the Agency has the power to seek further information at any time under regulation 28 to the PPC Regulations provided that it acts reasonably.

Other PPC Permits relating to this installation		
Permit holder	**Permit Number**	**Date of Issue**
N/A	-	-

Other existing Licences/Authorisations/Registrations relating to this installation		
Holder	**Reference Number**	**Date of issue**
Lafarge Aggregates Limited	N/WR0235	27/09/2001

Superseded Licences/Authorisations/Consents relating to this installation		
Holder	**Reference Number**	**Date of Issue**
N/A	-	-

Other activities may take place on the site of this installation which are not regulated under this Permit or any other PPC Permit referred to in the Table above.

Public Registers

Considerable information relating to Permits including the Application is available on public registers in accordance with the requirements of the PPC Regulations. Certain information may be withheld from public registers where it is commercially confidential or contrary to national security.

Variations to the Permit

This Permit may be varied in the future (by the Agency serving a Variation Notice on the Operator). If the Operator itself wants any of the Conditions of the Permit to be changed, it must submit a formal Application. The Status Log within the Introductory Note to any such Variation Notice will include summary details of this Permit, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

Surrender of the Permit

Before this Permit can be wholly or partially surrendered, an Application to surrender the Permit has to be made by the Operator. For the application to be successful, the Operator must be able to demonstrate to the Agency that there is no pollution risk and that no further steps are required to return the site to a satisfactory state.

Transfer of the Permit or part of the Permit

Before the Permit can be wholly or partially transferred to another person, an Application to transfer the Permit has to be made jointly by the existing and proposed holders. A transfer will be allowed unless the Agency considers that the proposed holder will not be the person who will have control over the operation of the installation or will not comply with the conditions of the transferred Permit. As the Permit authorises the carrying out of a specified waste management activity, the transfer will only be allowed if the proposed holder is also considered to be "a fit and proper person" as required by the PPC Regulations.

Talking to us

Please quote the Permit Number if you contact the Agency about this Permit.

To give a Notification under condition 5.1.1, the Operator should use the Incident Hotline telephone number (0800 80 70 60) or any other number notified in writing to the Operator by the Agency for that purpose.

Status Log

Detail	Date	Comment
Application BX3368PN	Received 28/07/2004	
Response to request for information	Request dated 11/11/2004	Response dated 22/11/2004
Request to extend determination	Request dated 16/02/2005	Request accepted 01/03/2005
Request to include geological barrier	Request of 09/05/05	Incorporated in condition 1.6.1
Revision to Waste Acceptance Criteria and Procedures	Received 10/06/05	
Permit determined	Issued 26/8/05	

End of introductory Note.

ENVIRONMENT AGENCY

Permit

Permit number

BX3368PN

The Environment Agency (the Agency) in exercise of its powers under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (SI 2000 No 1973), and Regulation 6 of the Landfill (England and Wales) Regulations 2002 (S.I.2002 No.1559) hereby authorises

Lafarge Aggregates Limited ("the Operator"),

of/ whose Registered Office is

The Old Rectory

Misterton

Lutterworth

Leicestershire

LE17 4JP

Company registration number 297905

to operate an installation at

Tyttenhanger Landfill

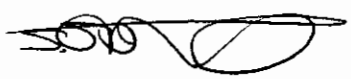
Coursers Road

London Colney

Hertfordshire

to the extent authorised by and subject to the conditions of this Permit.

The landfill authorised by this Permit is for the disposal of inert waste

Signed	Date
	26th August 2005

S.M. Storey
Authorised to sign on behalf of the Agency

Conditions

1 General

1.1 Permitted Activities

1.1.1 The Operator is authorised to carry out the activities and the associated activities specified in Table 1.1.1.

Table 1.1.1

Activity listed in Schedule 1 of the PPC Regulations / Associated Activity	Description of specified activity	Limits of specified activity
Section 5.2Part A (1)(b)The disposal of waste in a landfill.	Landfill for inert waste (landfill classification under the Landfill Regulations 2002)	Receipt, handling, storage and disposal of inert wastes, consisting of the types and quantities specified in condition 2.1.2.1, as an integral part of landfilling.
Non-listed Associated Activity	Discharge of site surface water from the landfill.	Surface water discharged from the installation via pipeline to the former Tyttenhanger Quarry mineral processing works.

1.1.2 Where waste on site is subjected to activities that are exempt from control under the Waste Management Licensing Regulations 1994, then the wastes controlled under condition 1.1.1, above, shall be clearly identified and kept separate from such exempt waste activities and a record shall be kept of where such exempt activities are conducted.

1.2 Site

1.2.1 The activities authorised under condition 1.1.1 shall not extend beyond the Site, being the land shown edged in red on the Site Plan at Schedule 5 to this Permit.

1.3 Overarching Management Condition

1.3.1 Without prejudice to the other conditions of this Permit, the Operator shall implement and maintain a management system, organisational structure and allocate resources that are sufficient to achieve compliance with the limits and conditions of this Permit.

1.4 Improvement Programme

1.4.1 The Operator shall complete the improvements specified in Table 1.4.1 by the date specified in that table, and shall send written notification of the date of completion of each requirement to the Agency within 14 days of the completion of each such requirement.

Table 1.4.1: Improvement programme requirements

Reference	Requirement	Date
1a	The Operator shall provide a waste quarantine area, which shall be designed and maintained in a manner to prevent the release of unauthorised substances to groundwater.	Prior to the acceptance of waste

Table 1.4.1 (continued): Improvement programme requirements		
Reference	**Requirement**	**Date**
1b	A report detailing the documentation to record the construction and installation of the waste quarantine area required by improvement condition 1a shall be submitted to the Agency in writing.	No less than one month prior to the installation of the waste quarantine area required by improvement condition 1a.
1c	Following submission of the report required by improvement condition 1b, the Operator shall undertake any measures approved in writing by the Agency.	To the timescales indicated in the approval.
2a	The operator shall submit a revised groundwater monitoring plan to the Agency. The plan shall include, in addition to that previously submitted, but need not be restricted to, the following details; • The location of the monitoring points based on knowledge of the hydraulic gradients at the site; and • the method of collection and analysis of groundwater samples; and • the method of quality checking the samples; and • the list of additional determinands that will be analysed for; and • trigger and/or control levels for those additional determinands based on background water quality and legislative regulatory standards.	Within two months of issue of the permit.
2b	Upon agreement with the Agency of the monitoring plan submitted under improvement condition 2a, the monitoring plan shall be implemented.	To the timescales indicated in the approval.
3a	The Operator shall submit a surface water monitoring plan to the Agency. The plan shall include, but need not be restricted to, the following details; • The location of the monitoring points based on the knowledge of the flows in the water courses/bodies surrounding the site; and • the method of collection and analysis of surface water samples, and • the method of quality checking the samples; and • the list of determinands that will be analysed for; and • control levels and emission standards based on background water quality and legislative regulatory standards.	Within two months of issue of the permit.
3b	Upon agreement with the Agency of the monitoring plan submitted under improvement condition 3a, the monitoring plan shall be implemented.	To the timescales indicated in the approval.
4a	The Operator shall submit a revised landfill gas monitoring plan to the Agency. The plan shall include, but need not be restricted to, the following details; • The location, number and construction of permanent monitoring points that are to be installed in areas of the landfill where the spike bar survey would not be appropriate based on the depth of the waste; and • the method of collection and analysis of landfill gas samples, and • the method of quality checking the samples; and • the list of determinands that will be analysed for.	Within 6 months of completion of each phase
4b	Upon agreement with the Agency of the monitoring plan submitted under improvement condition 4a, the monitoring plan shall be implemented.	To the timescales indicated in the approval.

Table 1.4.1 (continued): Improvement programme requirements		
Reference	**Requirement**	**Date**
5	The operator shall establish and operate an environmental management system which is either accredited, or to a standard capable of being accredited to a recognised environmental management system standard.	Within 2 months of issue of the permit.

1.4.2 Where the Operator fails to comply with any requirement by the date specified in Table 1.4.1 it shall send written notification of such failure to the Agency within 14 days of such date.

1.5 Minor Operational Changes

1.5.1 The Operator shall seek the Agency's written agreement to any minor operational changes under condition 2.1.1 of this Permit by sending to the Agency: written notice of the details of the proposed change including an assessment of its possible effects (including waste production) on risks to the environment from the Permitted Installation; any relevant supporting assessments and drawings; and the proposed implementation date.

1.5.2 Any such change shall not be implemented until agreed in writing by the Agency. As from the agreed implementation date, the Operator shall operate the Permitted Installation in accordance with that change, and relevant provisions in the Application shall be deemed to be amended.

1.5.3 When the qualification "unless otherwise agreed in writing" is used elsewhere in this Permit, the Operator shall seek such agreement by sending to the Agency written notice of the details of the proposed method(s) or techniques.

1.5.4 Any such method(s) or techniques shall not be implemented until agreed in writing by the Agency. As from the agreed implementation date, the Operator shall operate the Permitted Installation using that method or technique, and relevant provisions in the Application shall be deemed to be amended.

1.6 Pre-Operational Conditions

1.6.1 No disposal of wastes shall take place in any part of the Permitted Installation where waste deposits commences after the issue of this Permit unless:

1.6.1.1 At least 4 weeks prior to the commencement of construction of that part the operator has submitted to the Agency in writing the detailed design, material specifications and the construction quality assurance (CQA) programme for the pre-operational engineering of the artificially established geological barrier for that part and that it has been confirmed in writing by the Agency that these are in conformance with the following specifications. The artificially established barrier shall be constructed to achieve an appropriate travel time based on a minimum thickness of 1m with the material placed at a maximum permeability of $1x10^{-7}m.s^{-1}$, or equivalent hydraulic performance standard. The thickness of the barrier shall at no time be less than 500mm. The material used to construct the barrier shall not contain any substance at a concentration that would result in a discharge to groundwater of a List I substance at a discernible concentration, or a discharge of a List II substance that would result in pollution of groundwater; and

1.6.1.2 the operator has notified the Agency in writing of any changes in the detailed design, material specifications and the CQA programme that are to be made during the construction, and in advance of those changed being made the Agency has agreed in writing that these are acceptable in relation to the relevant specification set out in condition 1.6.1.1; and

1.6.1.3 the pre-operational engineering and infrastructure of that part of the barrier has been completed and validated in accordance with the documented CQA procedures, and

1.6.1.4 the operator has submitted the validation report in writing to the Agency; and

1.6.1.5 the Agency has inspected the area to ensure that it complies with the relevant conditions of the landfill permit, and has confirmed in writing that it has no objection to that area becoming operational.

1.6.2 The Operator shall provide a report to the Agency detailing trigger and control levels for groundwater before landfill commences. These values shall be based on the background groundwater quality characterisation established under Part B2.2.39 of the Application, and shall include both the variability and trends for these parameters. The values shall be submitted to and agreed by the Agency before landfilling commences.

1.7 Off-site Conditions

1.7.1 There are no off-site conditions

2 Operating conditions

2.1 Landfilling Controls

2.1.1 The Permitted Installation shall, subject to the conditions of this Permit, be operated using the techniques and in the manner described in the documentation specified in Table 2.1.1, or as otherwise agreed in writing by the Agency in accordance with conditions 1.5.1 and 1.5.2 of this Permit.

Table 2.1.1: Operating techniques

Description	Parts	Date Received
Application	The response to questions 2.1, 2.2, 2.3, 2.4, 2.5, 2.9 and 2.11 in part B of the Application Form	28 July 2004
Appendix M	Al parts	10 June 2005

2.1.2 Wastes shall only be accepted for disposal on the site if :

2.1.2.1 they are as specified in table 2.1.2 below:

Table 2.1.2 : Wastes accepted for disposal

Waste Category or Type	Permitted or not Permitted
Hazardous	Not Permitted
Non-hazardous	Not Permitted
Inert	Permitted
Liquid wastes (including waste waters but excluding sludge).	Not permitted
Waste which in the conditions of landfill is explosive, corrosive, oxidising, highly flammable or flammable.	Not permitted
Hospital and other clinical infectious wastes from medical or veterinary establishments.	Not permitted
Chemical substances from research and development or teaching activities, for example laboratory residues, which are unidentified and/or which are new and whose effects on man and/or the environment are unknown.	Not permitted
Whole used tyres (other than tyres used as engineering materials, bicycle tyres and tyres with an outside diameter of more than 1400mm.	Not permitted
Shredded used tyres (other than bicycle tyres and tyres with an outside diameter of more than 1400mm.	Not permitted
Any waste which does not fulfil the relevant waste acceptance criteria.	Not permitted
Waste which has been diluted or mixed solely to meet the relevant waste acceptance criteria.	Not permitted
Wastes which have not been treated, except for: • inert wastes for which treatment is not technically feasible; or • it is waste other than inert waste and treatment would not reduce its quantity or the hazards which it poses to human health or the environment.	Not Permitted

and

2.1.2.2 they are in accordance with the waste quantities, as described in the application.

2.1.2.3 The Operator of the landfill shall visually inspect the waste at the entrance to the landfill and at the point of the deposit and shall satisfy himself that it conforms to the description provided in the documentation submitted by the holder.

2.1.2.4 The Operator shall ensure that if representative samples are taken for analysis, the operator shall retain the samples and results of any analysis for at least one month.

2.1.2.5 The Operator on accepting each delivery of waste shall provide a written receipt to the person delivering it.

2.1.3 The Operator shall ensure that the landfill is secured to prevent free access to the site and the gates of the landfill must be locked outside operating hours.

2.1.4 The total quantity of waste that shall be deposited in the landfill shall not exceed 3.6 million tonnes.

2.1.5 The quantity of waste that is deposited in the landfill in any year shall not exceed the limits in Table 2.1.3 below.

Table 2.1.3 Annual Waste Input Limits

Category	Limit Tonnes/ Year
Hazardous Waste	Not permitted
Non-hazardous Waste	Not permitted
Stable, non-reactive hazardous waste	Not permitted
Inert Waste	600,000

2.1.6 The Operator shall maintain and implement a system which ensures that a record is made of the quantity, characteristics, origin, date of delivery, the identity of the producer (or in the case of municipal waste, the collector) of any waste that is received for disposal or recovery at the Permitted Installation.

2.1.7 The Operator shall record the quantity of waste deposited within the landfill.

2.2 Emissions

2.2.1 Emissions to Air, (excluding Odour, Noise or Vibration) from Specified Points

2.2.1.1 Part 2.2.1 of this Permit shall not apply to releases of odour, noise or vibration.

2.2.1.2 There are no specific controls imposed upon emissions to air in this part of the Permit.

2.2.1.3 No condition applies.

2.2.1.4 No condition applies.

2.2.2 Emissions to water (other than groundwater), from specified points

2.2.2.1 2.2.2 of this Permit shall not apply to releases of odour, noise or vibration or to releases to groundwater.

Emissions to Water (other than to Sewer)

2.2.2.2 Conditions 2.2.2.3 - 6 shall not apply to emissions to sewer.

2.2.2.3 No emission from the Permitted Installation shall be made to water.

2.2.2.4 No condition applies.

2.2.2.5 No condition applies.

2.2.2.6 No condition applies.

Emissions to sewer

2.2.2.7 There are no specific controls imposed on emissions to sewer in this part of the Permit.

2.2.2.8 No condition applies.

2.2.2.9 No condition applies.

2.2.2.10 No condition applies.

2.2.3 Emissions to groundwater

2.2.3.1 No emission from the Permitted Installation shall give rise to the introduction into groundwater of any substance in List I (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)).

2.2.3.2 No emission from within the Permitted Installation shall give rise to the introduction into groundwater of any substance in List II (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)) so as to cause pollution (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)).

2.2.3.3 For substances other than those in List I or II (as defined in the Groundwater Regulations 1998 (SI 1998 No.2746)), the Operator shall ensure that all appropriate measures are taken to prevent or where that is not practicable to reduce emissions to groundwater from the Permitted Installation provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.3.4 The Operator shall carry out monitoring of the parameters listed in Table 2.2.10, at the specified monitoring points and at least at the frequencies specified in that Table.

2.2.3.5 The trigger levels for emissions into groundwater for the parameter(s) and monitoring point(s) set out in Table 2.2.10 shall not be exceeded.

Table 2.2.10: The trigger levels and monitoring for emissions into groundwater					
Parameters	**Monitoring Points with frequency of monitoring**				
	BH1	BH5/01	BH6/01	BH7/01	BH17
	Annually				
Ammonical Nitrogen (mg.l-1)	0.3 or any other level determined under condition 1.6.3.				
Cadmium (µg.l-1)	0.1 or any other level determined under condition 1.6.3.				
Calcium (mg.l-1)	250 or any other level determined under condition 1.6.3.				
Chloride(mg.l-1)	250 or any other level determined under condition 1.6.3.				
Chromium (µg.l-1)	50 or any other level determined under condition 1.6.3.				
Iron (mg.l-1)	0.2 or any other level determined under condition 1.6.3.				
Lead (mg.l-1)	10 or any other level determined under condition 1.6.3.				
Magnesium (mg.l-1)	50 or any other level determined under condition 1.6.3.				
Manganese (µg.l-1)	50 or any other level determined under condition 1.6.3.				
Nickel (µg.l-1)	20 or any other level determined under condition 1.6.3.				
Potassium (mg.l-1)	12 or any other level determined under condition 1.6.3.				
Sulphate (mg.l-1)	250 or any other level determined under condition 1.6.3.				
Any other substances as determined as an priority contaminant under improvement condition 2a	Any level determined under improvement condition 2a.				

2.2.3.6 Subject to the terms of this condition, the activities of disposal, or tipping for the purpose of disposal, of waste, that are authorised by this landfill permit shall cease 3½ years from date of issue of this Permit, unless by that date the operator has submitted to the Agency a written review of the Hydrogeologocal Risk Assessment submitted as part of the original Application for the permit.

The Risk Assessment review shall include a review of the responses in Section B1.4.1 of Part B of that original application. The written review shall show whether at the specified date, the level of risk to groundwater meets the terms of the Groundwater Regulations 1998.

Within six months of receipt of the written review the Agency shall reply in writing to the operator either confirming that the above requirements have been met and authorising continuation of disposal activities or that activities of disposal or tipping for the purpose of disposal of waste authorised by this permit shall cease until the operator can show that, the level of risk to groundwater meets the terms of the Groundwater Regulations 1998.

In the event that the continuation of activities is authorised in accordance with this condition beyond 4 years following the date of granting of this Permit, they shall cease on every fourth anniversary thereafter, unless, by each of those dates, the operator has submitted to the Agency a further written review of the Hydrogeological Risk Assessment which shows that, at the specified dates, the level of risk to groundwater meets the terms of the Groundwater Regulations.

The reviews submitted to the Agency shall include the results of any investigations and reviews carried out, and, in particular, reviews of the following aspects of the Hydrogeological Risk Assessment:

Recommendations of the essential technical precautions which must be taken, paying particular attention to the nature and concentration of the substances present in the matter being disposed of or tipped, the characteristics of the receiving environment and the proximity of the water catchment areas, in particular those for drinking, thermal and mineral water;

Recommendations of the technical precautions necessary:

i In the case where groundwater is considered to be permanently unsuitable for other uses, to ensure that no substance in list I can reach other aquatic ecosystems or harm other ecosystems, to ensure that the presence of any list I substance once discharged into the groundwater will not impede exploitation of ground resources and to prevent pollution of groundwater by list II substances; and

ii in the case where groundwater is not considered to be permanently unsuitable for other uses, to prevent any discharges into groundwater of substances in list I and to prevent any pollution of groundwater by substances in list II.

2.2.4 Fugitive emissions of substances to air

2.2.4.1 The Operator shall ensure that all appropriate measures are taken to prevent or where that is not practicable to reduce fugitive emissions of substances to air from the Permitted Installation in particular from:

- open surfaces, unfilled, operational and filled landfill surfaces
- storage areas
- buildings
- pipes, valves and other transfer systems

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.4.2 The Operator shall use all appropriate measures so as to prevent or where that is not practicable to reduce emissions of litter and dust from the Permitted Installation provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.5 Fugitive emissions of substances to water and sewer

2.2.5.1 Subject to condition 2.2.5.2 below, the Operator shall ensure that all appropriate measures are taken to prevent or where that is not practicable to reduce fugitive emissions of substances to water (other than Groundwater) and sewer from the Permitted Installation in particular from:

- all structures under or over ground
- surfacing
- bunding
- storage areas

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.5.2 There shall be no release to water that would cause a breach of an EQS established by the UK Government to implement the Dangerous Substances Directive 76/464/EEC.

2.2.6 Odour

2.2.6.1 The Operator shall ensure that all appropriate measures are taken to prevent or where that is not practicable to reduce odorous emissions from the Permitted Installation, in particular by:

- controlling operational activities to minimise the generation of odour
- limiting the use of odorous materials
- restricting odorous activities
- controlling the storage conditions of odorous materials
- optimising the performance of abatement systems
- timely monitoring, inspection and maintenance
- employing, where appropriate, an approved odour management plan

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.7 Emissions to Land

2.2.7.1 Part 2.2.7 of this Permit shall not apply to emissions to groundwater.

2.2.7.2 2.2.7.2 There are no specific controls imposed on emissions to land in this part of the Permit.

2.3 Management and Fit and Proper Person

2.3.1 A copy of this Permit and those parts of the application referred to in this Permit shall be available, at all times, for reference by all staff carrying out work subject to the requirements of the Permit.

Training

2.3.2 The Permitted Installation shall be supervised by staff who are suitably trained and fully conversant with the requirements of this Permit.

2.3.3 All staff shall be fully conversant with those aspects of the Permit conditions which are relevant to their duties and shall be provided with adequate professional technical development and training and written operating instructions to enable them to carry out their duties.

2.3.4 The Operator shall maintain a record of the skills and training requirements for all staff whose tasks in relation to the Permitted Installation may have an impact on the environment and shall keep records of all relevant training.

Maintenance

2.3.5 All plant and equipment used in operating the Permitted Installation, the failure of which could lead to an adverse impact on the environment, shall be maintained in good operating condition.

2.3.6 The Operator shall maintain a record of relevant plant and equipment covered by condition 2.3.5 and for such plant and equipment:

2.3.6.1 a written or electronic maintenance programme; and

2.3.6.2 records of its maintenance.

Incidents and Complaints

2.3.7 The Operator shall maintain and implement written procedures for:

2.3.7.1 taking prompt remedial action, investigating and reporting actual or potential non-compliance with operating procedures or emission limits and if such event occur;

2.3.7.2 investigating incidents, (including any malfunction, breakdown or failure of plant, equipment or techniques, down time, any short term and long term remedial measures and near misses) and prompt implementation of appropriate actions; and

2.3.7.3 ensuring that detailed records are made of all such actions and investigations.

2.3.8 The Operator shall record and investigate complaints concerning the Permitted Installation's effects or alleged effects on the environment. The record shall give the date and nature of complaint, time of complaint, name of complainant (if given), a summary of any investigation and the results of such investigation and any actions taken.

Fit and Proper Person

2.3.9 Where Regulation 4 of the Regulations applies to a relevant activity/associated activity carried on at the Permitted Installation, as authorised under condition 1.1.1:

2.3.9.1 Any changes in technically competent management and the name of any incoming person together with evidence that such person has the required technical competence shall be submitted to the Agency in writing within 5 working days of the change in management. Technically competent management and technical competence shall be as prescribed under Section 74 of the Environmental Protection Act 1990.

2.3.9.2 In the event of the Operator and/or any relevant person being convicted of any relevant offence and which is in addition to any already notified to the Agency, then full details shall be provided to the Agency within 14 days of conviction, whether or not the conviction is subsequently appealed. Such details shall include , in respect of each relevant person (as defined in section 74(7) of the Environmental Protection Act 1990 or any subsequent amendments to that section), the nature of the offence, the place and date of conviction, any sentence, and any fine or other penalty imposed; and

2.3.9.3 In the event that the Operator and/or any relevant person lodges an appeal against any such conviction, the Operator shall notify the Agency of this within 14 days of the lodging. The Operator shall notify the Agency of the results of that appeal, within 14 days of the appeal being decided; and

2.3.9.4 The financial provision for meeting the obligations under this Permit set out in the Agreement made between the Operator and the Agency dated 26th August 2005 shall be maintained by the Operator throughout the subsistence of this Permit and the Operator shall produce evidence of such provision whenever required by the Agency.

2.3.10 The Operator shall ensure that the charges it makes for the disposal of waste in the landfill covers all of the following

a) the costs of setting up and operating the landfill;

b) the costs of the financial provision required by condition 2.3.9.4; and

c) the estimated costs for the closure and after-care of the landfill site for a period of at least 10 years from its closure.

2.4 Efficient use of raw materials

2.4.1 The Operator shall:

2.4.1.1 maintain the raw materials table or description submitted in response to Section 2.4 of the Application and in particular consider on a periodic basis whether there are suitable alternative materials to reduce environmental impact;

2.4.1.2 carry out periodic waste minimisation audits and water use efficiency audits. If such an audit has not been carried out in the 2 years prior to the issue of this Permit, then the first such audit shall take place within 2 years of its issue. The methodology used and an action plan for increasing the efficiency of the use of raw materials or water shall be submitted to the Agency within 2 months of completion of each such audit and a review of the audit and a description of progress made against the action plan shall be submitted to the Agency at least every 4 years thereafter; and

2.4.1.3 ensure that incoming water use is directly measured and recorded.

2.5 Waste Storage and Handling

2.5.1 No condition applies except as covered by the requirements in 2.1.1

2.6 Waste recovery or disposal

2.6.1 Waste produced at the Permitted Installation shall be recycled or recovered unless technically and/or economically impossible.

2.6.2 No condition applies

2.6.3 The Operator shall maintain and implement a system which ensures that a record is made of the quantity, composition, origin, destination (including whether this is a recovery or disposal operation) and where relevant removal date of any waste that is produced at the Permitted Installation.

2.7 Energy Efficiency

2.7.1 No condition applies

2.8 Accident prevention and control

2.8.1 The Operator shall maintain and implement when necessary an accident management plan which shall be at least as effective as that submitted or described in response to Section B2.3.4 of the Application. The plan shall be reviewed at least every 2 years or as soon as practicable after an accident, whichever is the earlier, and the Agency notified of the results of the review within 2 months of its completion.

2.9 Noise and Vibration

2.9.1 The Permitted Installation shall be designed, operated and maintained so as to avoid reasonable cause for annoyance from noise or vibration, in particular by:

- equipment maintenance e.g. fans, pumps, motors, conveyors and mobile plant;
- use and maintenance of appropriate attenuation e.g. silencers, barriers, enclosures;
- timing and location of noisy activities and vehicle movements;
- periodic checking of noise emissions, either qualitatively or quantitatively; and
- maintenance of building fabric.

Provided always that the techniques used by the Operator shall be no less effective than those described in the application, where relevant

2.10 On Site Monitoring

2.10.1 The Operator shall maintain and implement an emissions monitoring programme which ensures that emissions are monitored from the specified points, for the parameters listed in and to the frequencies and methods described in Table 2.2.10, unless otherwise agreed in writing, and that the results of such monitoring are assessed. The programme shall ensure that monitoring is carried out under an appropriate range of operating conditions.

2.10.2 The Operator shall carry out environmental monitoring to the frequencies and methods described in Table 2.10.1

Table 2.10.1 : Other monitoring requirements

Emission point reference or source or description of point of measurement	Substance or parameter	Monitoring frequency	Control level
In waste monitoring wells as installed under the requirements of improvement condition 4b	Methane	Annual	1%
In waste monitoring wells as installed under the requirements of improvement condition 4b	Carbon dioxide	Annual	1%

2.10.3 No condition applies.

2.10.4 No condition applies.

2.10.5 The Operator shall notify the Agency at least 14 days in advance of undertaking monitoring and/ or spot sampling, where such notification has been requested in writing by the Agency.

2.10.6 The Operator shall maintain records of all monitoring taken or carried out (this includes records of the taking and analysis of samples instrument measurements (periodic and continual), calibrations, examinations, tests and surveys) and any assessment or evaluation made on the basis of such data.

2.10.7 There shall be provided:

2.10.7.1 safe and permanent means of access to enable sampling/monitoring to be carried out in relation to the emission points specified in Schedule 2 to this Permit, unless otherwise specified in that Schedule; and

2.10.7.2 safe means of access to other sampling/monitoring points when required by the Agency.

2.11 Closure, Aftercare and Decommissioning

2.11.1 The Permitted Installation shall, subject to the conditions of this Permit, be managed and controlled as described in the documentation specified in Table 2.11.1, or as otherwise agreed in writing by the Agency.

Table 2.11.1: Closure, Aftercare and Decommissioning techniques

Description	Parts	Date Received
Application	The response to questions B2.11 In Part B of the application form.	28 July 2004

2.11.2 Where the above Table refers to the whole or parts of different documents, in the event of any conflict between the wording of such documents, the wording of the later document(s) shall prevail to the extent of such conflict.

2.11.3 No condition applies.

2.11.4 Not withstanding condition 2.11.1 of this Permit, the Operator shall carry out a full review of the Site Closure Plan at least every 4 years.

2.11.5 The Operator shall implement the site closure plan on receipt of a notice from the Agency approving definitive closure of the landfill or part thereof.

2.11.6 The Operator shall give at least 30 days written notice to the Agency before implementing the site closure plan in respect of any non-landfill activities.

2.12 Multiple Operator installations

2.12.1 This is not a multi-Operator installation

2.13 Transfer to effluent treatment plant

2.13.1 No transfer from the Permitted Installation shall be made to effluent treatment plant

3 Records

3.1.1 The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:-

- be made available for inspection by the Agency at any reasonable time
- be supplied to the Agency on demand and without charge
- be legible
- be made as soon as reasonably practicable
- indicate any amendments which have been made and shall include the original record wherever possible; and
- be retained at the Permitted Installation, or other location agreed by the Agency in writing, for a minimum period of 4 years from the date when the records were made, unless otherwise agreed in writing.

4 Reporting

4.1.1 All reports and written and or oral notifications required by this Permit and notifications required by Regulation 16 of the PPC Regulations shall be made or sent to the Agency using the contact details notified in writing to the Operator by the Agency.

4.1.2 The Operator shall, unless otherwise agreed in writing, submit reports of the monitoring and assessment carried out under condition 2.10, as follows:

- in respect of the parameters and emission points specified in Table S2 to Schedule 2.
- for the reporting periods specified in Table S2 to Schedule 2 and using the forms specified in Table S3 to Schedule 3;
- giving the information from such results and assessments as may be required by the forms specified in those Tables; and
- to the Agency within 28 days of the end of the reporting period.

4.1.3 The Operator shall submit to the Agency a report on the performance of the Permitted Installation over the previous year, by 31 January each year, providing the information listed in Tables S4.1 of Schedule 4, assessed at any frequency specified therein.

4.1.4 The Operator shall review fugitive emissions, having regard to the application of the most appropriate measures to prevent pollution, on an annual basis, or such other period as shall be agreed in writing by the Agency, and a summary report on this review shall be sent to the Agency detailing such releases and the measures taken to reduce them within 3 months of the end of such period.

4.1.5 . No condition applies.

4.1.6 The Operator shall, within 6 months of receipt of written notice from the Agency, submit to the Agency a report assessing whether all appropriate preventive measures continue to be taken against pollution at the installation. The report shall consider any relevant published technical guidance current at the time of the notice which is either supplied with or referred to in the notice, and shall assess the costs and benefits of applying techniques described in that guidance, or otherwise identified by the Operator, that may provide environmental improvement.

4.1.7 No condition applies

4.1.8 The Operator shall submit to the Agency an interpretation report of the monitoring results for landfill gas, leachate, surface and groundwater against the relevant emission limits, assessment limits, control and trigger levels specified in the permit on a three monthly basis, and shall submit a summary report of these interpretations to the Agency within one month of the end of each three month period.

4.1.8 The Operator shall review all monitoring data required by this permit on an annual basis and shall submit a summary report to the Agency within three months of the end of each year.

4.1.9 The Operator shall submit to the Agency a report setting out the types and quantities of waste disposed of at the landfill on a three monthly basis i.e. for the periods 1 April - 30 June; 1 July - 30 September; 1 October - 31 December and 1 January - 31 March, such report to be received within 1 month from the end of each period.

5 Notifications

5.1.1 The Operator shall notify the Agency without delay of:-

5.1.1.1 the detection of an emission of any substance which exceeds any limit or criterion in this Permit specified in relation to the substance;

5.1.1.2 the detection of any fugitive emission which has caused, is causing or may cause significant adverse environmental effect; unless the quantity emitted is so trivial that it would be incapable of causing significant adverse environmental effect;

5.1.1.3 the detection of any malfunction, breakdown or failure of plant or techniques which has caused, is causing or has the potential to cause significant pollution;

5.1.1.4 any accident which has caused, is causing or has the potential to cause significant pollution;

5.1.1.5 the refusal to accept or rejection of incoming waste at the landfill, and

5.1.1.6 the detection of any significant adverse environmental effects

5.1.2 The Operator shall submit written confirmation to the Agency of any notification under condition 5.1.1, by sending:-

5.1.2.1 information listed in Part A of Schedule 1 to this Permit within 24 hours of such notification; and

5.1.2.2 the more detailed information listed in Part B of that Schedule as soon as practicable thereafter;

5.1.2.3 and such information shall be in accordance with that Schedule.

5.1.3 The Operator shall give prior written notification to the Agency of the following events and in the specified timescales:

5.1.3.1 as soon as practicable prior to the permanent cessation of the landfill disposal operations,

5.1.3.2 as soon as practicable prior to the cessation of the operation of the landfill disposal operations, for a period likely to exceed 1 month

5.1.3.3 at least 14 days prior to the resumption of the landfill disposal operations after a cessation

5.1.4 The Operator shall notify the Agency, as soon as practicable, of any information concerning the state of the site which affects or updates that provided to the Agency as part of the Site Report submitted with the application for this Permit.

5.1.5 The Operator shall notify the following matters to the Agency in writing within 14 days of their occurrence:

5.1.5.1 where the Operator is a registered company:

- any change in the Operator's trading name, registered name or registered office address;
- any change to particulars of the Operator's ultimate holding company (including details of an ultimate holding company where an Operator has become a subsidiary)
- any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement or being wound up;

5.1.5.2 where the Operator is a corporate body other than a registered company:

- any change in the Operator's name or address;
- any steps taken with a view to the dissolution of the Operator.

5.1.5.3 In any other case:

- the death of any of the named Operators (where the Operator consists of more than one named individual);
- any change in the Operator's name(s) or address(es);
- any steps taken with a view to the Operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case them being in a partnership, dissolving the partnership;

6 Interpretation

6.1.1 In this Permit, the following expressions shall have the following meanings:

"*Application*" means the application for this Permit, together with any response to a notice served under Schedule 4 to the PPC Regulations and any operational change agreed under the conditions of this Permit.

"*background concentration*" means such concentration of that substance as is present in:

- water supplied to the site; or
- where more than 50% of the water used at the site is directly abstracted from ground or surface water on site, the abstracted water; or
- where the Permitted Installation uses no significant amount of supplied or abstracted water, the precipitation onto the site.

"*BAT*" means best available techniques means the most effective and advanced stage of development of activities and their methods of operation which indicates the practical suitability of particular techniques to prevent and where that is not practicable to reduce emissions and the impact on the environment as a whole. For these purposes: "available techniques" means "those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced inside the United Kingdom, as long as they are reasonably accessible to the Operator"; "best" means "in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole" and "techniques" "includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned." . In addition, Schedule 2 of the PPC Regulations has effect in relation to the determination of BAT.

"*Fugitive emission*" means an emission to air or water (including sewer) from the Permitted Installation which is not controlled by an emission or background concentration limit under conditions 2.2.1.3, 2.2.2.4, 2.2.2.5, 2.2.2.8 or 2.2.2.9 of this Permit"

"*Groundwater*" means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"*Interim Hazardous*" means a landfill classified as hazardous until 16th July 2004

"*Monitoring*" includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.

"*Permitted Installation*" means the activities and the limits to those activities described in Table 1.1.1 of this Permit.

"*PPC Regulations*" means the Pollution, Prevention and Control (England and Wales) Regulations SI 2000 No.1973 (as amended) and words and expressions defined in the PPC Regulations shall have the same meanings when used in this Permit save to the extent they are specifically defined in this Permit. It shall include any future amendments or superseding legislation

"*Sewer*" means sewer within the meaning of section 219(1) of the Water Industry Act 1991.

"*Staff*" includes employees, directors or other officers of the Operator, and any other person under the Operator's direct or indirect control, including contractors.

"*Year*" means calendar year ending 31 December.

6.1.2 Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

6.1.3 Unless otherwise stated, any references in this Permit to concentrations of substances in emissions into air means;

6.1.3.1 in relation to gases from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or

6.1.3.2 in relation to gases from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

6.1.4 Where any condition of this Permit refers to the whole or parts of different documents, in the event of any conflict between the wording of such documents, the wording of the document(s) with the most recent date shall prevail to the extent of such conflict.

Schedule 1 - Notification of abnormal emissions and significant adverse environmental effects

This page outlines the information that the Operator must provide to satisfy conditions 5.1.1 and 5.1.2 of this Permit.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part C refers specifically to the requirement to notify the Agency of any significant environmental effect as required by the Landfill Regulations and should be used instead of Part B to report such to the Agency.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the PPC Regulations.

Part A

Permit Number	
Name of Operator	
Location of Installation	
Location of the emission/ significant adverse environmental effect	
Time and date of the emission/ significant adverse environmental effect	

Substance[s] emitted	**Media**	**Best estimate of the quantity or the rate of emission**	**time during which the emission took place**
	e.g. air		
	e.g. groundwater		

Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment or harm which has been or may be caused by the emission	
The dates of any unauthorised emissions from the installation in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Lafarge Aggregates Limited

PART C

Nature of significant adverse environmental effect (e.g. Groundwater Pollution, LFG escape)	
Immediate measures taken to prevent further effects from this source	
Further measures taken , or intended to be taken, to rectify, limit or prevent any pollution of the environment or harm which has been or may be caused by the significant adverse environmental effect	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Lafarge Aggregates Limited

Schedule 2 - Reporting of monitoring data

Parameters, for which reports shall be made, in accordance with conditions 4.1.2 and 4.1.3 of this Permit, are listed below.

Table S2: Reporting of monitoring data

Parameter	Emission point	Reporting period	Period begins
Level (m.AOD)	Boreholes BH1, BH5/01, BH6/01, BH7/01, BH17, BH18, BH1/95, BHCR1, BHCR2, BHCR3, BHCR4, BHCR5 and any other boreholes installed as a result of improvement conditions 2a and 2b.	Quarterly or any other frequency determined as a result of compliance with improvement condition 2a.	Date of permit issue
pH			Date of permit issue
Electrical conductivity (µS.cm-1)			Date of permit issue
Ammonical Nitrogen (mg.l-1)			Date of permit issue
Total Oxidised Nitrogen (mg.l-1)			Date of permit issue
Total Organic Carbon (mg.l-1)			Date of permit issue
Cadmium (µg.l-1)			Date of permit issue
Calcium (mg.l-1)			Date of permit issue
Chloride(mg.l-1)			Date of permit issue
Chromium (µg.l-1)			Date of permit issue
Iron (mg.l-1)			Date of permit issue
Lead (mg.l-1)			Date of permit issue
Magnesium (mg.l-1)			Date of permit issue
Manganese (µg.l-1)			Date of permit issue
Nickel (µg.l-1)			Date of permit issue
Potassium (mg.l-1)			Date of permit issue
Sulphate (mg.l-1)			Date of permit issue
Any other substances as determined as an priority contaminant under improvement condition 2a			Following notification of compliance with improvement condition 4b.
Carbon Dioxide (% vol), Methane (% vol) and Oxygen (% vol)	3 perimeter boreholes to be agreed with the Agency.	6 monthly	Date of Permit Issue
	Temporary monitoring points installed during impact searcher bar survey.	6 monthly	Commencement of waste disposal within any phase
	In waste gas monitoring well, installed under improvement conditions 4a and 4b.	6 monthly	
Surface water monitoring parameters agreed under improvement condition 3a	W1	To be agreed with the Agency	Following notification of compliance with improvement condition 3b

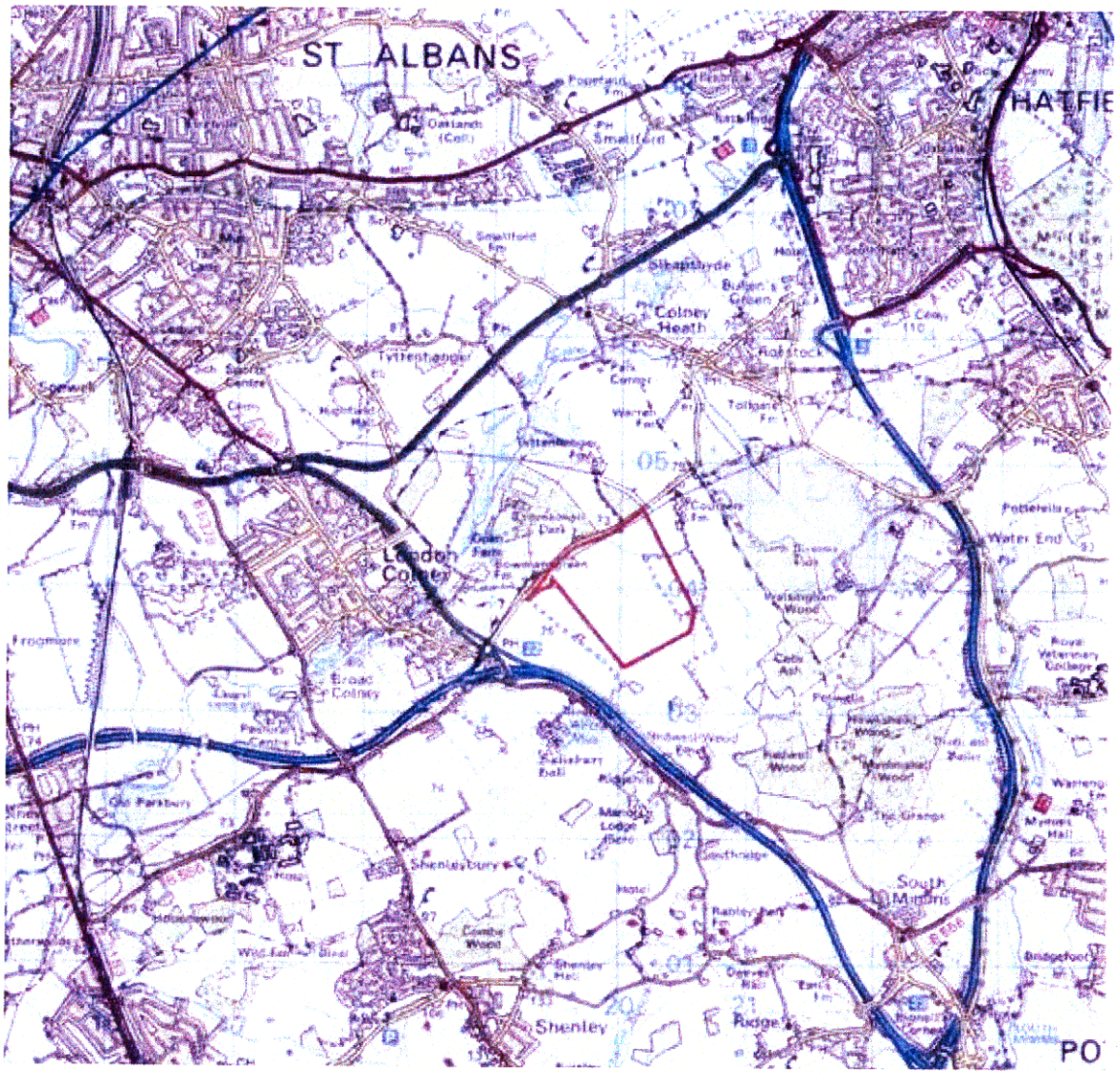
Schedule 3 - Forms to be used

Table S3:Reporting Forms		
Media/parameter	**Form Number**	**Date of Form**
Waste Return	WPPCS1	

Schedule 4 - Reporting of performance data

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Schedule 5 - Site Plan



6.1.5 ["Reproduced from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office ©Crown Copyright 2000. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings."]

END OF PERMIT

Permit

The Environmental Permitting (England & Wales) Regulations 2010

GB Railfreight Limited

Upside Railway Yard
Brent Terrace
Cricklewood
London
NW2 1LN

Permit number

EPR/AB3200KE

Permit

Permit number

EPR/AB3200KE

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

GB Railfreight Limited ("the operator"),

whose registered office is

15-25 Artillery Lane
London
E1 7HA

company registration number 03707899.

to operate *waste operations* described in standard rules SR2009No5 at

Upside Railway Yard

Brent Terrace

Cricklewood

London

NW2 1LN

to the extent authorised by and subject to the conditions of this permit.

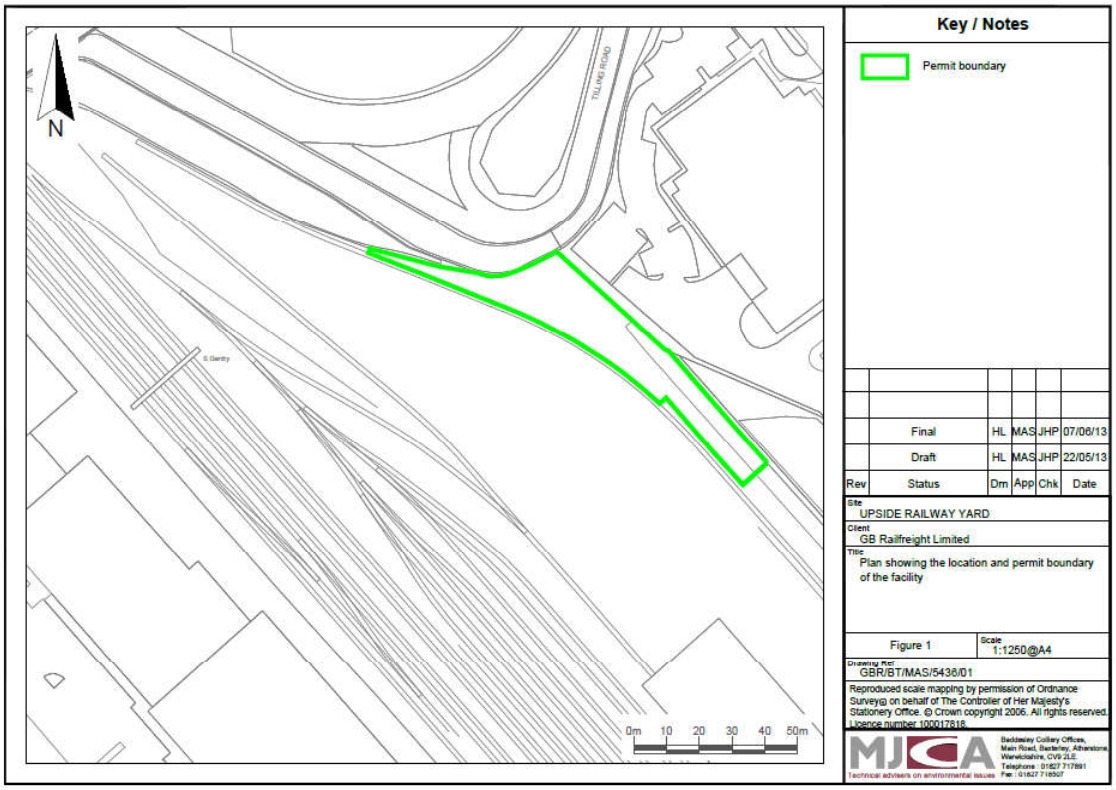
Under regulation 27(2) of the Regulations, standard rules SR2009No5 are conditions of this permit.

Name	Date
Emma Preston	***28/08/2013***

Authorised on behalf of the Environment Agency

Schedule 1 - Site plan

This is the plan referred to in the standard rules SR2009No5



DoW CoP
Sustainable Reuse of Soils
A CL:AIRE Initiative

2022-12-16 17:25:19

Definition of Waste Code of Practice Declaration Receipt

This Declaration has been submitted to the Environment Agency under the Definition of Waste Code of Practice (DoW CoP).

You are reminded that if materials are not used in accordance with the Materials Management Plan or risk assessment, or if it is discovered that materials were not suitable for use, were used in excessive quantity or in such a manner as to harm human health or pollute the environment, the Environment Agency may conclude that those materials were discarded and were waste.

You are also reminded that a Verification Report must be prepared on completion of the work as set out in the Remediation Strategy / Design Statement covering the site. This Verification Report must be provided to the Environment Agency upon request.

This receipt relates to the following Declaration -

1. References	
Your Reference for this Declaration	GE20368D Canalside Park SS5
Related declaration references	2021-11-11 11:00:17 2022-04-06 15:06:51 2022-07-07 10:30:56 2022-07-11 08:43:29
3. Site of Origin	N/A
4. Direct Transfer	Checked
5. Cluster Project (including use of a fixed Soil Treatment Facility as a Hub site)	N/A

2. Proposed Volumes	
Proposed Volumes in m^3	20000
Additional comments on Proposed Volumes	Appendix L3 States that 19620m3 of materials from site will be uncontaminated and inert natural soil and pile arisings. (As such 19620m3 available rounded up to nearest thousand for declaration/charging)

4. Direct Transfer	
4a. Route A: Direct use of clean naturally occurring soils with elevated levels of naturally occurring substances on another development site.	N/A

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4b. Route B: Direct use of clean naturally occurring soils on another development site.	Checked
4c. Donor Sites	
Donor Site #1	
Site Address	Plot B Ferry Island, Tottenham Hale Centre Development, 125-139 High Cross Road, N17 9NU
Company	Woodland Environmental Ltd
Developer company address	DTH FI Phase 2 GP Ltd. 4 Stable Street, London Mark Swinburne – 0203 6640277 Site listed above fall under the control of a single senior manager as follows; Peter Panioty, Woodland Environmental Ltd, 4 Elstree Way, Borehamwood, Hertfordshire, WD6 1RN. Peter.panioty@woodland.uk.com Tel: 07763558836 Earthworks Contractor: S Walsh and Sons Ferry Lane, Rainham, Essex RM13 9YB Sam Hardinge 07841 499846 Sam@swalsh.com
Name	Peter Panioty
Email	Peter.panioty@woodland.uk.com
Telephone	07763558836
4d. Receiver Sites	
Receiver Site #1	
Site Address	Glade Lane Canalside Park, Glade Lane, Southall Middlesex, UB2 4PL
Company	London Borough of Ealing Council
Developer company address	London Borough of Ealing Council Perceval House Uxbridge Road Ealing W5 2HL Chris Bunting buntingc@ealing.gov.uk 0208 825 6429 Woodland Environmental Ltd, 4 Elstree Way, Borehamwood, Hertfordshire, WD6 1RN. Peter Panioty Peter.panioty@woodland.uk.com Tel: 07763558836
Name	Peter Panioty

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Email	Peter.panioty@woodland.uk.com
Telephone	07763558836

6. Local Authorities / Regulators	
6a. Local Authorities	
Local Authority #1	
Receiver Site Local Authority	London Borough of Ealing
Local Authority Address	Chris Bunting London Borough of Ealing Council Perceval House Uxbridge Road Ealing W5 2HL E | BuntingC@ealing.gov.uk T | 020 8825 6429
Lead Contact Name	Chris Bunting
Lead Contact Role	Portfolio Holder
Lead Contact Address (if different from above)	As above
Lead Contact Email	BuntingC@ealing.gov.uk
Lead Contact Telephone	020 8825 6429
Receiver Site Agency	Hatfield
Agency Address	Environment Agency – Herts and North London Waste Apollo Court Bishops Square Business Park St Albans Road West Hatfield AL10 9EX T | 01707 632405 E | HNL_WASTE@environment-agency.gov.uk See email trail with EA Referenced: Greg Swingler of HNL_WASTE EA team and Lisa Hill (DOWCOP Specialist) and Clay Durrant Clay.Durrant@environment-agency.gov.uk (Who most recent correspondence has been with)
Contact Telephone	01707 632405
Contact Email	HNL_WASTE@environment-agency.gov.uk

7. Lines of Evidence

Reference for the Materials Management Plan	Materials Management Plan for Canalside Park, Glade Lane, Public open Space Improvements, Lichfield prepared by Michael Graham of ICON Planning and Environmental on behalf of London Borough of Ealing Council, dated 3rd November 2022, Reference I.21.2350.MMP.001 Version D (To include SS5) Including updated Schematic on Volumes from each Source Site. Contact: Email: mgraham@iconsulting.uk.com; Telephone: 01953 857669



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Reference for the Risk Assessment	- Appendix D – Risk and Contamination Assessment - Site investigation Report undertaken for Glade Lane, Southall Middlesex by LBH Wembley, on behalf of Southall Football Club and Sports Club Limited, dated June 2002, Ref: LBH2927. - Remediation Scheme for Glade Lane Canalside Park, Southall, Middlesex UB2 4PL, undertaken by HDP Environmental Consulting Limited, on behalf of Icon Planning and Environmental, dated August 2021, Ref: GL36001. - Letter Report Ref: 1.22.2350.EA.COR.001 – response to EA to address previous concerns raised on RSVP dated 14.01.2022 from Michael Graham at I Consulting to Clay Durrant, Environment Agency - Email trail between Clay Durrant, Environment Agency and Michael Graham I Consulting between 25/01/2022 and 23/03/2022. Final email from Clay Durrant Dated 23/03/22 confirms acceptance of RSVP and use of DOWCOP on site. Donor Site Risk Assessment for Donor Site (SS5) – Transfer relates to materials from Plot B Ferry Island only, although Appendix L1 relate to a wider site area. -Appendix L1 – Geotechnical Interpretative Report for Tottenham Hale Development, undertaken by Whitby Wood, on behalf of THFILP, dated 28/11/2019, Ref P450040-REP-004 Revision 3. -Appendix L2 – Geo-environmental Interpretative Report 2020 for Tottenham Hale Development, undertaken by Whitby Wood, on behalf of THFILP, dated 26/11/2021, Ref P450040-REP-010 Revision 1. Appendix L3 - Material Assessment Report for Enabling work Excavations at Ferry Island undertaken by Powell Associates Limited on behalf of JRL Environmental Limited. Direct Transfer relates to clean naturally occurring materials only (Enfield Silt, Kempton Park Gravel and London Clay. and excludes Made Ground and the Enfield Silt in MIP101 at 1.2m (elevated antimony) It is noted that several contaminants including solvents have been identified within the groundwater in one location beneath the site as part of the 2019 wider site investigation (BH03), which has not been linked to an on site source in relation to Plot B, Ferry Island. Testing of soils at depth undertaken and presented in the report presented in Appendix L2 across the Plot B Ferry Island Plot for VOCs has not reported the presence of such

Reference for either Remediation Strategy or Design Statement	- Design Statement for Canalside Park, Southall, Middlesex UB2 4PL, undertaken by Icon Planning and Environmental, dated 03/02/2021, Ref: (I.20.2350.DS.001). (Including Construction Method Statement undertaken by Woodland Environmental dated September 2021) - Remediation Scheme for Glade Lane Canalside Park, Southall, Middlesex UB2 4PL, undertaken by HDP Environmental Consulting Limited, on behalf of Icon Planning and Environmental, dated August 2021, Ref: GL36001. - Letter Report Ref: 1.22.2350.EA.COR.001 – response to EA to address previous concerns raised on RSVP dated 14.01.2022 from Michael Graham at I Consulting to Clay Durrant, Environment Agency - Email trail between Clay Durrant, Environment Agency and Michael Graham I Consulting between 25/01/2022 and 23/03/2022. Final email from Clay Durrant Dated 23/03/22 confirms acceptance of RSVP and use of DOWCOP on site.
Reference for the Verification Plan	Verification Plan detailing what to be presented in Verification Report in Section 26 of the MMP and in RSVP (Appendix D).
Company	Woodland Environmental Ltd
Address	Woodland Environmental Ltd 4 Elstree Way, Borehamwood Hertfordshire WD6 1RN Peter.panioty@woodland.uk.com Tel: 07763558836
Name	Peter Panioty
Email	Peter.panioty@woodland.uk.com
Telephone	07763558836
Expected production date for the Verification Report.	2023-11-30 00:00:00

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7gi. Location plans	Appendix B: Drawings and Plans - Drawing 01 Glade Lane Proposed - Drawing 02 Glade Lane Existing - Drawing 03 Glade Lane Works area - Drawing 04 Glade Lane Clearance scheme - Drawing 05 Glade Lane Layout - Drawing 06 Glade Lane grading plan - Drawing 07 Glade Lane Landscaping plan - Drawing 08 Glade Lane drainage plan - i.21.2350.TP.001A - Tree Protection Plan - I.21.2350.TP.002 - Tree Protection Fencing
7gii. Schematics	Appendix B: Drawings and Plans - i.18.2349.MMP S001 – Revision B Issue Materials Movement Schematic (Updated to include changes in volume SS1, SS2, SS3 & SS4 and inclusion of SS5)

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7giii. Desk Top Study	- Appendix D – Risk and Contamination Assessment - Site investigation Report undertaken for Glade Lane, Southall Middlesex by LBH Wembley, on behalf of Southall Football Club and Sports Club Limited, dated June 2002, Ref: LBH2927. - Remediation Scheme for Glade Lane Canalside Park, Southall, Middlesex UB2 4PL, undertaken by HDP Environmental Consulting Limited, on behalf of Icon Planning and Environmental, dated August 2021, Ref: GL36001. - Letter Report Ref: 1.22.2350.EA.COR.001 – response to EA to address previous concerns raised on RSVP dated 14.01.2022 from Michael Graham at I Consulting to Clay Durrant, Environment Agency - Email trail between Clay Durrant, Environment Agency and Michael Graham I Consulting between 25/01/2022 and 23/03/2022. Final email from Clay Durrant Dated 23/03/22 confirms acceptance of RSVP and use of DOWCOP on site. Risk Assessment for Donor Site (SS5) – Transfer relates to materials from Plot B Ferry Island only, although Appendix L1 relate to a wider site area. -Appendix L1 – Geotechnical Interpretative Report for Tottenham Hale Development, undertaken by Whitby Wood, on behalf of THFILP, dated 28/11/2019, Ref P450040-REP-004 Revision 3. -Appendix L2 – Geo-environmental Interpretative Report 2020 for Tottenham Hale Development, undertaken by Whitby Wood, on behalf of THFILP, dated 26/11/2021, Ref P450040-REP-010 Revision 1. Appendix L3 - Material Assessment Report for Enabling work Excavations at Ferry Island undertaken by Powell Associates Limited on behalf of JRL Environmental Limited. Direct Transfer relates to clean naturally occurring materials only (Enfield Silt, Kempton Park Gravel and London Clay. and excludes Made Ground and the Enfield Silt in MIP101 at 1.2m (elevated antimony) It is noted that several contaminants including solvents have been identified within the groundwater in one location beneath the site as part of the 2019 wider site investigation (BH03), which has not been linked to an on site source in relation to Plot B, Ferry Island. Testing of soils at depth undertaken and presented in the report presented in Appendix L2 across the Plot B Ferry Island Plot for VOCs has not reported the presence of such contaminants sorbed to the soil mass. It is

7giv. Mass balance calculations	- Design Statement for Canalside Park, Southall, Middlesex UB2 4PL, undertaken by Icon Planning and Environmental, dated 03/02/2021, Ref: (I.20.2350.DS.001). (Including Construction Method Statement undertaken by Woodland Environmental dated September 2021) Appendix B: Drawings and Plans - Drawing 01 Glade Lane Proposed - Drawing 02 Glade Lane Existing - Drawing 03 Glade Lane Works area - Drawing 04 Glade Lane Clearance scheme - Drawing 05 Glade Lane Layout - Drawing 06 Glade Lane grading plan - i.18.2349.MMP S001 – Revision B Issue Materials Movement Schematic (Updated to include changes in volume SS1, SS2, SS3 & SS4 and inclusion of SS5)
7gv. Contingency arrangements	- Contingency Plans – Are presented in Section 21a-21d of MMP
7gvi. Tracking system	- Appendix F: Tracking Form and System: - Acceptance and Tracking Procedure
Additional Documentation #1	
Document Type	-Planning -Background documents that have fed into Design Statement for site - correspondence with EA.

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Document Reference	- Appendix A: Planning consent and officer's report - 202710/FUL Decision Notice for Glade Lane Canalside Park, Glade Lane, Southall Middlesex, UB2 4PL, Issued by Ealing Council, dated 06/11/2020. Condition 5: Requirement for RSVP. - 213934/VAR Decision Notice for Glade Lane Canalside Park, Glade Lane, Southall Middlesex, UB2 4PL, Issued by Ealing Council, dated 17/09/2021 (Including removal of Condition 5:RSVP) Appendix E - Planning application supporting statements: - Preliminary Ecological Appraisal for Canalside Park, Southall, Middlesex UB2 4PL, undertaken by The Ecology Consultancy on behalf of Icon Planning and Environmental, dated 13/07/2020, Ref: 9874 (I.20.2350.ECO.001). - Flood Risk Assessment for Canalside Park, Southall, Middlesex UB2 4PL, undertaken by Evans Rivers and Canals on behalf of Icon Planning and Environmental, dated June 2020, Ref: 2525/re/06-20/01 (I.20.2350.FRA.001). - Planning Statement for Canalside Park, Southall, Middlesex UB2 4PL, undertaken by Icon Planning and Environmental, dated 14/07/2020, Ref: (I.20.2350.PS.001). - Transport Statement for Canalside Park, Southall, Middlesex UB2 4PL, undertaken by Pell Frischmann on behalf of London Borough of Ealing dated July 2020, Ref: 102614 (I.20.2350.TA.001). - Supporting Statement for Canalside Park, Southall, Middlesex UB2 4PL, undertaken by Icon Planning and Environmental, dated 24/05/2021, Ref: (I.20.2350.GBP.001). To accompany the submission of condition 5 RSVP. - Landscape Management Plan for Canalside Park, Southall, Middlesex UB2 4PL, undertaken by Icon Planning and Environmental, dated 24/05/2021, Ref: (I.20.2350.GBP.S73.001). Emails To EA: - Email of 4th October 2021 from Michael Graham of ICON to HNL_WASTE team at EA notifying of proposed use of DOWCOP detailing works and RSVP details and requesting confirmation of no objection. - Follow up email on 11th October by Michael Graham of ICON to HNL_WASTE team at EA chasing for response. - Email from Greg Swingler of HNL_WASTE EA team dated 20th October 2021, acknowledging receipt of email from 4th October 2021 and stating it had been forwarded on to Lisa Hill (DOWCOP Specialist) and that she was aware of the deadline of the 25/10/21 for

a) The Local Authority	Checked
b) Environment Agency	Checked
c) Natural Resources Wales	N/A
d) Other relevant environmental regulatory bodies	N/A
Reference the correspondence with the Local Authority	- 202710/FUL Decision Notice for Glade Lane Canalside Park, Glade Lane, Southall Middlesex, UB2 4PL, Issued by Ealing Council, dated 06/11/2020. Condition 5: Requirement for RSVP. - 213934/VAR Decision Notice for Glade Lane Canalside Park, Glade Lane, Southall Middlesex, UB2 4PL, Issued by Ealing Council, dated 17/09/2021 (Including removal of Condition 5:RSVP.

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Reference the correspondence with the Environment Agency	Email chain to/with EA: - Email of 4th October 2021 from Michael Graham of ICON to HNL_WASTE team at EA notifying of proposed use of DOWCOP detailing works and RSVP details and requesting confirmation of no objection. - Follow up email on 11th October by Michael Graham of ICON to HNL_WASTE team at EA chasing for response. - Email from Greg Swingler of HNL_WASTE EA team dated 20th October 2021, acknowledging receipt of email from 4th October 2021 and stating it had been forwarded on to Lisa Hill (DOWCOP Specialist) and that she was aware of the deadline of the 25/10/21 for comment. However as of 31st October 2021 no comment or concerns relating to the use of the DOWCOP Had been received. As such in line with DOWCOP a reasonable attempt had been made to contact the EA however no comment or objection to the use of the DOWCOP has been received, as such proposed to continue works in line with DOWCOP as proposed and detailed to the Environment Agency. - Letter Report Ref: 1.22.2350.EA.COR.001 – response to EA to address previous concerns raised on RSVP dated 14.01.2022 from Michael Graham at I Consulting to Clay Durrant, Environment Agency - Email trail between Clay Durrant, Environment Agency and Michael Graham I Consulting between 25/01/2022 and 23/03/2022. Final email from Clay Durrant Dated 23/03/22 confirms acceptance of RSVP and use of DOWCOP on site.
I have reviewed the planning consent including planning conditions	Checked

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Planning Reference (State either the reference or Not Applicable.)	- 202710/FUL Decision Notice for Glade Lane Canalside Park, Glade Lane, Southall Middlesex, UB2 4PL, Issued by Ealing Council, dated 06/11/2020. Condition 5: Requirement for RSVP. - 213934/VAR Decision Notice for Glade Lane Canalside Park, Glade Lane, Southall Middlesex, UB2 4PL, Issued by Ealing Council, dated 17/09/2021 (Including removal of Condition 5:RSVP.
a) The Local Authority	Checked
b) Environment Agency	Checked
c) Natural Resources Wales	N/A
d) Other relevant environmental regulatory bodies	N/A

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Please list correspondence reviewed above	- 202710/FUL Decision Notice for Glade Lane Canalside Park, Glade Lane, Southall Middlesex, UB2 4PL, Issued by Ealing Council, dated 06/11/2020. Condition 5: Requirement for RSVP. - 213934/VAR Decision Notice for Glade Lane Canalside Park, Glade Lane, Southall Middlesex, UB2 4PL, Issued by Ealing Council, dated 17/09/2021 (Including removal of Condition 5:RSVP. Email chain to/with EA: - Email of 4th October 2021 from Michael Graham of ICON to HNL_WASTE team at EA notifying of proposed use of DOWCOP detailing works and RSVP details and requesting confirmation of no objection. - Follow up email on 11th October by Michael Graham of ICON to HNL_WASTE team at EA chasing for response. - Email from Greg Swingler of HNL_WASTE EA team dated 20th October 2021, acknowledging receipt of email from 4th October 2021 and stating it had been forwarded on to Lisa Hill (DOWCOP Specialist) and that she was aware of the deadline of the 25/10/21 for comment. However as of 31st October 2021 no comment or concerns relating to the use of the DOWCOP Had been received. As such in line with DOWCOP a reasonable attempt had been made to contact the EA however no comment or objection to the use of the DOWCOP has been received, as such proposed to continue works in line with DOWCOP as proposed and detailed to the Environment Agency. - Letter Report Ref: 1.22.2350.EA.COR.001 – response to EA to address previous concerns raised on RSVP dated 14.01.2022 from Michael Graham at I Consulting to Clay Durrant, Environment Agency - Email trail between Clay Durrant, Environment Agency and Michael Graham I Consulting between 25/01/2022 and 23/03/2022. Final email from Clay Durrant Dated 23/03/22 confirms acceptance of RSVP and use of DOWCOP on site.

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Planning consent not required	N/A

8. QP Declaration	
8a. QP Name	Laura Legate
8b. QP Number	QP293
8c. I satisfy the Qualified Person requirements set out in Appendix 6 of the Definition of Waste: Development Industry Code of Practice to complete this Declaration.	Checked
8d. I have reviewed the Materials Management Plan for the above project.	Checked
8e. I have reviewed the Risk Assessment.	Checked
8f. I have reviewed the Remediation Strategy/Design Statement covering the above site.	Checked
8g. I have requested correspondence / documentation relating to the development and how that relates to the use of materials.	Checked
8h. The risk assessment assesses human health and environmental risks in relation to the proposed uses of all the materials in the MMP. The risk assessment concludes that the objectives of preventing harm to human health and pollution of the environment will be met if materials are used in the proposed manner	Checked
8i. The Local Authority, the Environment Agency / Natural Resources Wales and other relevant environmental regulatory bodies have not objected to the proposed development / land remediation on the basis that the use of any material is likely to cause harm to human health or pollution of the environment. [This confirmation should be given regardless of whether planning consent is required for the activity. Also see paragraph 3.37 of the CoP.].	Checked

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8j. The EA/NRW have not objected to the reuse of materials on the grounds that it a.) constitutes a waste management operation or b.) has had a previous application for an environmental permit for waste recovery refused (on the grounds that the project represents waste disposal).	Checked
8k. The project does not involve land-spreading / agricultural re-profiling.	Checked
8l. The project has not yet commenced; this is not a retrospective application of the DoW CoP.	Checked

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Appendix P
Discharge Permit.

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THAMES WATER UTILITIES LTD.

Water Industry Act 1991

CONSENT TO THE DISCHARGE OF TRADE EFFLUENT

WHEREAS

1. J Reddington Limited
   4 Elstree Way
   Borehamwood
   Hertfordshire
   WD6 1RN

is/are the occupier(s)/owner(s) (hereinafter called THE APPLICANT) of the trade premises known as
J Reddington Limited and situated at
Ferry Island
Tottenham Hale
Haringey
London
N17 9FR

(hereinafter called THE PREMISES) and by notice dated Eighth day of November, Two Thousand and Twenty Two has/have made application to Thames Water Utilities Ltd. (hereinafter called THE COMPANY) to Consent to the discharge of Trade Effluent by him/her/them from THE PREMISES into THE COMPANY's public foul water and/or combined sewers.

2. Now therefore in exercise of the powers conferred upon it in that behalf as a sewerage undertaker by the Water Industry Act 1991, THE COMPANY HEREBY CONSENTS to the discharge of Trade Effluent from THE PREMISES into THE COMPANY's public foul or combined sewer(s) (hereinafter called THE SEWER(S)) subject to the following conditions:

Nature and composition	1.	The nature and composition of the Trade Effluent (hereinafter called THE TRADE EFFLUENT) to be discharged under this Consent is: Waste liquids arising from groundwater from construction of below ground structures, contaminated surface water and wheel washing

Sewer(s) affected	2.	(a) THE SEWER(S) into which THE TRADE EFFLUENT may be discharged is/are THE SEWER(S) detailed below: 450mm foul sewer Station Road And more particularly shown in line(s) on the annexed plan and thereon coloured red. The point(s) at or through which THE TRADE EFFLUENT is to be discharged is/are shown on the said plan and thereon marked green. (b) No connection shall be made to the said sewer without the prior approval of THE COMPANY and all such connections shall be constructed and maintained to the satisfaction of THE COMPANY at the expense of THE APPLICANT. (c) No change shall be made in such point(s) of discharge without prior Consent in writing of THE COMPANY.
Maximum quantity to be discharged	3.	The maximum quantity of THE TRADE EFFLUENT which may be discharged on any one day of twenty-four hours determined from midnight to midnight shall not exceed 150.000m³.
Maximum rate of discharge	4.	a) The maximum rate at which THE TRADE EFFLUENT may be discharged shall not exceed 18.000m³ per hour. b) The maximum rate at which THE TRADE EFFLUENT may be discharged shall not exceed 5.000 litres per second.

Matter to be eliminated prior to discharge to the sewer(s)	5.	(a) There shall be eliminated from THE TRADE EFFLUENT before it is discharged into THE SEWER(S) any matter, which, either alone or in combination with any matter with which it is likely to come into contact while passing through any sewers, would injure or obstruct any such sewers or cause injury to and/or damage to the health of any person lawfully present in, or in the vicinity of, such sewers, pumping stations or sewage treatment works or would make especially difficult or expensive the treatment or disposal of their contents and in particular but without prejudice to the generality of the foregoing words the following matters:-- (i) Petroleum spirit (ii) Calcium carbide (iii) Thiourea and thiourea derivatives (iv) Non biodegradable detergents Such discharges would constitute a criminal offence under section 111 of the Water Industry Act 1991. (b) Unless specified in APPENDIX 1, THE TRADE EFFLUENT shall not contain any substances determined by the Environment Agency as hazardous chemicals and elements (or '"specific substances") at a concentration greater than background as defined in the Trade Effluents (Prescribed Processes and Substances) Regulations 1989. (c) THE TRADE EFFLUENT shall not contain any of the substances listed in APPENDIX 1 at a concentration expressed in milligrams per litre greater than that stated. SEE APPENDIX 1
Temperature	6.	No Trade Effluent shall be discharged which has a temperature higher than 43 degrees Celsius
Acidity or alkalinity	7.	No Trade Effluent shall be discharged the pH value of which is less than 6.0 or greater than 11.0.
Changes in occupier or process	8.	(a) THE APPLICANT shall give to THE COMPANY notice in writing of any changes or proposed changes in the company name, address, occupier, processes, volume or discharge rate of THE TRADE EFFLUENT or changes which may result in the permanent cessation of the discharge. (b) THE APPLICANT shall give to THE COMPANY 21 (twenty-one) days prior written notice of any change in the process, process materials or any other circumstances likely to alter the nature and composition as set out in section 1. THE COMPANY shall have the right to refuse to agree to the change. (c) Any substance not declared on the Notice may not be discharged and shall not prejudice the right of THE COMPANY to serve a Notice of Direction within 2 (two) years from the date of issue of this Consent.

Payment

9. The APPLICANT shall be liable for payment of Trade Effluent Charges including:

(a) A sum calculated in accordance with the provisions contained in THE COMPANY's Wholesale Tariff Document.
(b) Any additional expenses which THE COMPANY may from time to time incur with respect to the monitoring, analysis, reception, treatment and disposal of THE TRADE EFFLUENT.
(c) Where samples taken by THE COMPANY establish that THE APPLICANT is in breach of a Consent, THE APPLICANT shall be liable to pay the sampling and analysis charge for each sample that was necessary to take in order to establish such a breach, which shall be the charge set out in THE COMPANY's Wholesale Tariff Document.

Entry and samples

10. Any person designated by THE COMPANY may on any occasion inspect, examine and test any works and apparatus installed in connection with THE TRADE EFFLUENT and obtain and take any sample of TRADE EFFLUENT from THE PREMISES.

Inspection

11. A safe and suitable inspection chamber or manhole shall be provided by THE APPLICANT to the satisfaction of THE COMPANY and located in a suitable position in relation to each pipe through which THE TRADE EFFLUENT is being discharged. The inspection chamber or manhole shall be so constructed and maintained by THE APPLICANT as to enable duly authorised representatives of THE COMPANY to take samples at any time of the matter passing into THE SEWER(S) from THE PREMISES

Measurement and determination of discharge

12. (a) Private meters may be necessary for the calculation of charges and compliance with the conditions of this Consent. These meters (hereinafter called PRIVATE METERS), if required by THE COMPANY, must be adequate for continuous measurement and automatically recording the volume, nature, composition and rate of discharge of THE TRADE EFFLUENT being discharged into THE SEWER(S) and shall be provided and maintained by THE APPLICANT to the satisfaction of THE COMPANY.

(b) The installation, accuracy testing, repair, replacement, calibration and exchange of PRIVATE METERS is the responsibility of THE APPLICANT and shall be carried out by THE APPLICANT in accordance with the conditions set out below:

THE APPLICANT shall notify THE COMPANY of its intention to install a new PRIVATE METER;
Within five (5) business days of the meter installation, THE APPLICANT shall provide to THE COMPANY details of the meter installation including meter serial number, meter location, a calibration certificate (where required), initial read and supporting photographic evidence. The photographic evidence must include the initial read and the meter serial number and must be of sufficient quality to enable THE COMPANY to confirm the meter details;

PRIVATE METERS shall be calibrated at least annually or more frequently if specified by THE COMPANY and certificated by a suitably qualified person and/or company approved by THE COMPANY;

THE APPLICANT shall arrange for any PRIVATE METERS to be repaired, replaced, exchanged or tested as appropriate within timescales agreed with THE COMPANY;

In the event of replacement or exchange of the PRIVATE METER, THE APPLICANT shall, within five (5) business days of the meter replacement, provide to THE COMPANY details of the meter removal and installation including meter serial numbers, meter location, a calibration certificate (where required), final read, initial read (and the dates of the final read and initial read) and supporting photographic evidence. The photographic evidence must include the final read, initial read and the meter serial numbers and must be of sufficient quality to enable THE COMPANY to confirm the meter details;

In the event of repair of the PRIVATE METER, THE APPLICANT shall, within five (5) business days of the meter repair, provide to THE COMPANY details of the meter read and supporting photographic evidence. The photographic evidence must include the meter read and the meter serial number and must be of sufficient quality to enable THE COMPANY to confirm the meter details;

In the event of testing of the PRIVATE METER, THE APPLICANT shall notify THE COMPANY of the test results within twenty (20) business days of the testing.

Records	13.	(a) Records in such a form as THE COMPANY may require shall be kept by THE APPLICANT of the volume, rate of discharge, nature and composition of THE TRADE EFFLUENT discharged into THE SEWER(S) and shall be made available for inspection at any time by duly authorised representatives of THE COMPANY and copies of such records shall be sent to THE COMPANY on demand. (b) If any PRIVATE METER ceases to register or measure correctly then, unless otherwise agreed, the volume during the period from the date on which the records were last accepted by THE COMPANY as being correct up to the date when the PRIVATE METER again registers correctly shall, for the purpose of any charges, be based on the average daily volume during the period of one month preceding the date on which the said records were last accepted as aforesaid or during the month immediately after the PRIVATE METER has been corrected, whichever is the higher. (c) The foregoing provisions of this condition shall be of no effect so long as there is available to the satisfaction of THE COMPANY some other method approved by THE COMPANY of sampling THE TRADE EFFLUENT or of determining, continuously measuring and recording volumes and rates of discharge and the nature and composition of THE TRADE EFFLUENT discharged.
Vacation of Site	14.	THE APPLICANT(s) must notify THE COMPANY in writing at least 21 days in advance of the following events: (a) Vacation of THE PREMISES by THE APPLICANT for any reason, whether permanent or temporary; (b) Change of ownership or occupation of THE PREMISES; (c) THE APPLICANTs entry into liquidation whether voluntarily or compulsorily or bankruptcy, if an individual; (d) The presentation of a petition for the appointment of an administrator or a receiver or manager in respect of THE APPLICANTs undertakings; (e) Cessation of discharge of TRADE EFFLUENT from THE PREMISES
Commencement of Discharge	16.	The commencement date of this Consent will be: 20th December 2022 THE APPLICANT must not discharge THE TRADE EFFLUENT before the commencement date.

NOTES:

a) All communications should be sent to the following address:
Trade Effluent
Thames Water Utilities Ltd
Crossness Sewage Treatment Works
Bazalgette Way
Abbey Wood
London
SE2 9AQ

Or Email:
Trade.Effluent@thameswater.co.uk

b) Your attention is drawn to the right of appeal to the Director General of Water Services conferred by Section 122 of the Water Industry Act 1991 if you are aggrieved by any condition attached to this Consent.

c) Charges for sewerage services may be payable in addition to Trade Effluent Charges

d) A copy of the Wholesale Tariff Document is available from Thames Water Utilities Ltd's website

e) If you discharge Trade Effluent in contravention of a condition of this Consent you will be guilty of a criminal offence and may be subject to prosecution.

APPENDIX 1 - SUBSTANCES

The Trade Effluent shall not contain any of the substances listed below at a concentration expressed in milligrams per litre greater than that stated:

Determinand Name	Consented Limit
Suspended Solids	2000.0
Settleable Solids	1000.0
Chemical Oxygen Demand	500.0
Rapidly Settleable Solids	100.0
Total Oil & Grease	50.0
Ammoniacal Nitrogen	35.0
Total Phosphorus	13.0

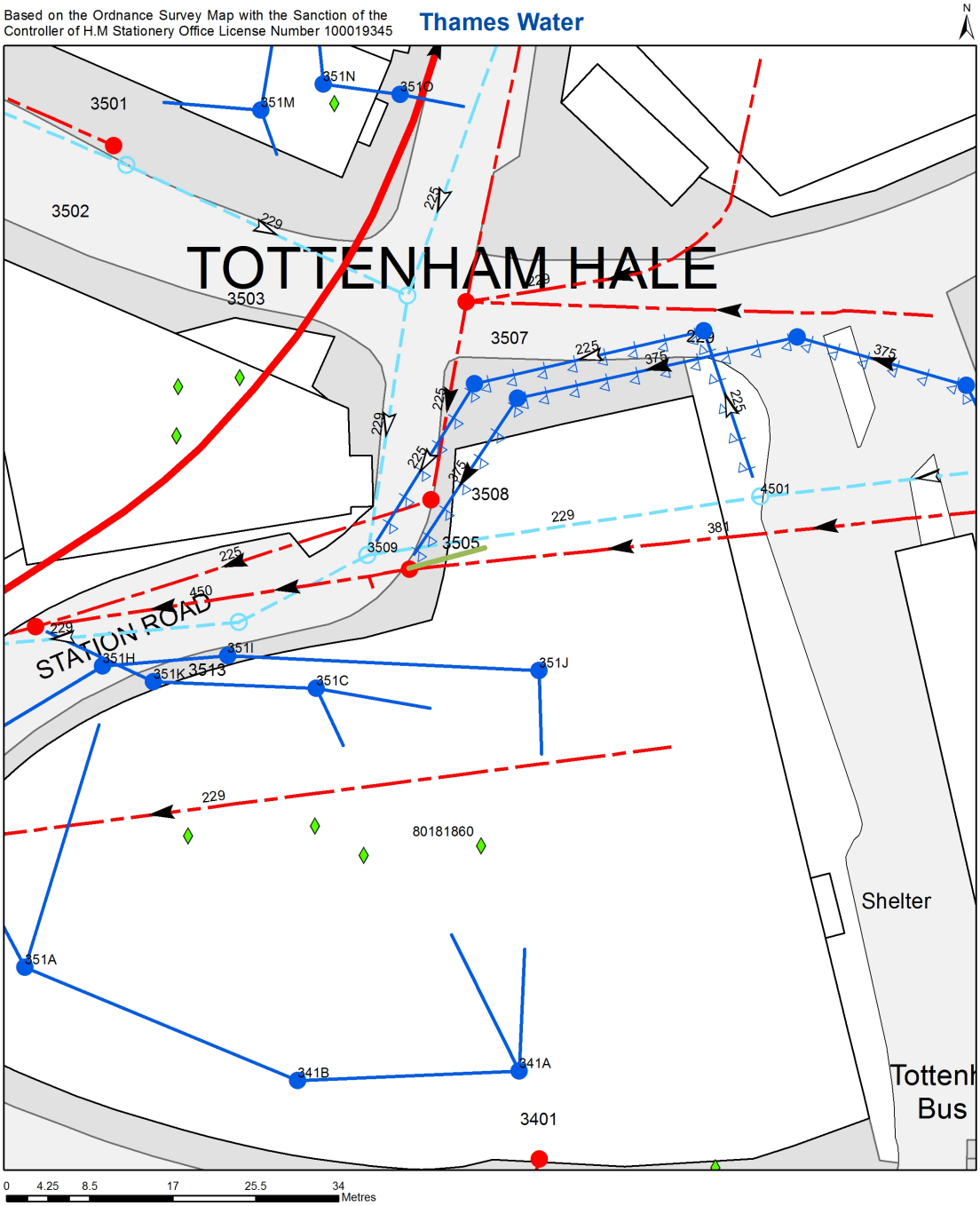
THERE ARE NO FURTHER LIMITS IN THIS APPENDIX

APPENDIX 2 - DISCHARGE POINTS

THERE ARE NO MORE DISCHARGE POINTS

APPENDIX 3 - SEWER PLAN

Sewer Plan



The position of any boundary or apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. No liability of any kind whatsoever is accepted by Thames Water for any error or omission.

Printed At (A4) :1:500
Printed By :MCOLLARD
Print Date :25/11/2022
Map Centered On :534371,189538
Grid Reference :TQ3489

APPENDIX 4 - ADDITIONAL CLAUSES

NO ADDITIONAL CLAUSES AVAILABLE

Appendix Q
Site Inspection Records (Validation of Imported Topsoil and Subsoil).

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TERRAGEN
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Our Ref. TJ3994HR1

JRL Group
4 Elstree Way
Borehamwood
WD6 1RN

18th August 2025

FAO: Laura Cabeza Escobar

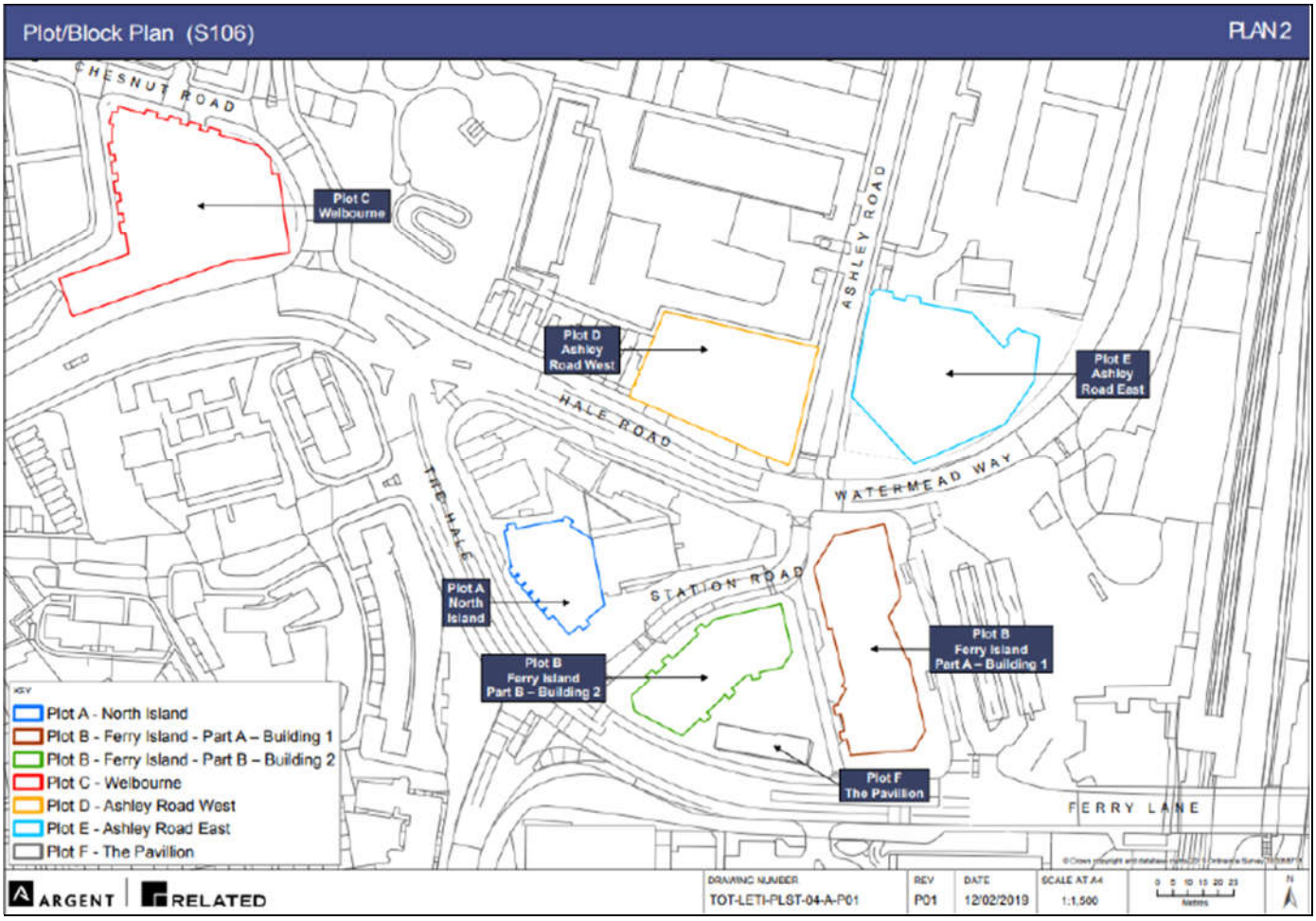
Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU

Validation Sampling – Imported Topsoil and Subsoil

Please find attached the results of laboratory testing carried out on six samples of soil (three topsoil and three subsoil) recovered from stockpiles of soil being spread in areas of soft landscaping at Ferry Island, Tottenham Hale (Plot B), 125-139 High Cross Road, London N17 9NU (the site) by a geo-environmental engineer from Terragen Environmental Consultants Limited (TGEN) on 07/08/2025.

1.0 BACKGROUND AND SITE DESCRIPTION

The Tottenham Hale Centre (THC) development consists of five different sites: Welbourne, North Island, Ferry Island, Ashley Road East, and Ashley Road West.



Prior to 1864, Ferry Island (Plot B) was predominantly residential with a pumping station occupying the E boundary. By 1936, the residential properties in the SW had been developed into a single building and the pumping station was no longer present. During the 1970s and 80s the site was cleared, and a new road junction constructed, in the SE corner of the site. More recently and prior to the current development Ferry Island has been occupied by three commercial units including KFC, Pizza Hut, and Maplin, with associated car parking.

Planning permission (ref. HGY/2018/2223 dated 27/03/2019) was granted by the London Borough of Haringey (the local authority) for demolition works and clearance of the existing site(s) to provide a mixed-use development comprising six buildings up to 38-storeys in height, which together with pavilion and basement accommodation will provide up to 104,053m^2 of floorspace (GIA), comprising residential (Use Class C3) (up to 1,036 units), retail (Use Class A1-A4), health centre (Use Class D1), office (Use Class B1), leisure (Use Class D2) parking and servicing areas, hard and soft landscaping (including the provision of a new public square), highways works, creation of new vehicular accesses and the realignment of Station Road, decentralised energy network works and other associated works.

The development at Ferry Island (Plot B) includes the construction of two buildings between 7 and 38-storeys in height with a single storey basement connecting the two buildings and associated public realm space. Building 1 will include 376 build to rent apartments with ground floor shell and core retail units. Building 2 will include 108, private, for sale apartments, also with shell and core retail units within the ground floor.

A remediation strategy (ref. CG/39277A Rev 0 dated September 2022) was prepared by Card Geotechnics Limited, which was submitted to the local authority in respect of the matters reserved by Conditions B19 and B24. Section 4.2 deals with capping layers and/or growth mediums and states that most of the site will either be covered in hardstanding/building footprint, but that where soft landscaping is to remain at ground level, a capping layer will be required to include 600mm (minimum of 150mm of topsoil) or 450mm (minimum of 150mm of topsoil) over a geotextile membrane. In addition, a growth medium will need to be placed in areas of soft landscaping over the basement or on roof top levels. The topsoil/subsoil placed to form the capping layer/growth medium will be clean imported soil from a known and reputable source.

The imported soils are to be chemically tested by a suitably qualified geoenvironmental engineer to confirm they comply with the import criteria at a frequency of one sample per 250m^3 of each imported soil, with a minimum of three samples per source. The imported soils are required to meet the chemical criteria presented in the import specification (Appendix C of the CGL Remediation Strategy), which provides the maximum permissible concentrations for imported capping layer soils. A copy of which is presented in Appendix A of this report.

Where soft landscaping is proposed within planters/at podium levels i.e., has no contact with the underlying made ground, then a growth medium would be required where the thickness of the growth medium layer would not be required to meet the above thicknesses. However, the thickness of the growth medium would be subject to the requirements of a landscape architect.

2.0 SOURCE VERIFICATION

In accordance with the requirements of the Remediation Strategy, JRL Group identified a source of topsoil (Rabbit Hill Topsoil) and subsoil (Barnsdale GT Subsoil) from Green-tech Limited (the soil supplier). The soil supplier provided recent reports for each source:

- Topsoil Analysis Report: Rabbit Hill Topsoil (ref. TOHA/25/1832/5/SS dated 05/06/2025) prepared by Tim O'Hare Associates LLP (TOHA).
- Subsoil Analysis Report: Barnsdale GT Subsoil (ref. TOHA/25/1832/4/SS dated 05/06/2025) prepared by TOHA.

The topsoil was described as dark reddish brown (Munsell Colour 10YR 3/3), moist, friable, non-calcareous loamy sand with a single grain structure. The soil was stone-free and contained a low proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

The subsoil was described as reddish yellow (Munsell colour 5YR 6/6), slightly moist, non-plastic, very calcareous, loamy sand with a single grain structure. The soil was stone-free, and no unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

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The topsoil was tested in accordance with BS3882:2015 Specification for Topsoil and the subsoil was tested in accordance with BS8601:2013 Specification for Subsoil. Both were also tested for a comprehensive suite of potential contaminants. Copies of the source verification reports are presented in Appendix B.

The topsoil was fully compliant with the requirements of BS3882:2015 for Multipurpose Topsoil. The subsoil was compliant with the requirements of BS8601:2013 for Multipurpose Subsoil except for the pH, which was strongly alkaline. The is common in light, sandy soils, which have a low buffering capacity (i.e., resistance to a change in pH) and it is therefore, not considered to represent a problem for landscape applications, if species tolerant of alkaline, calcareous soils are selected.

Both samples returned concentrations that were below the respective thresholds given in the chemical criteria for imported soils and were therefore considered acceptable for use at the site.

During August 2025, 20m^3 of topsoil (Rabbit Hill) and 35m^3 of subsoil (GT subsoil) for the tree pits on the S of Building 2 were imported.



Copies of the delivery notes are presented in Appendix C.

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3.0 VALIDATION SAMPLING

A geo-environmental engineer from TGEN visited the site on 07/08/2025, whilst the soils were being installed to recover representative samples of topsoil and subsoil from the tree pits on the S of Building 2 for validation testing. A photographic record and descriptions of the soils encountered are presented in the table below:

Photographic Record		
		
Geo-textile membrane installed in the base of the tree pit and subsoil installed.	Geo-textile membrane installed in the base of the tree pit and subsoil installed.	Topsoil ready for installation in the tree pit planter.

4.0 LABORATORY TESTING

Three representative samples of topsoil and three representative samples of subsoil were recovered and submitted to a UKAS/MCERTS accredited laboratory for testing in accordance with the parameters listed in Appendix C of the Remediation Strategy.

Copies of the laboratory certificates are presented in Appendix D.

All six samples returned concentrations that were below the respective maximum permissible concentrations for imported capping layer soils and therefore conform to the requirements of the Remediation Strategy.

*****

We trust that this report meets your requirements, but please contact us should you require clarification on any of the matters raised. Thank you for your custom and we hope that we can be of further assistance to you in the future.

Paul Brewer
BSc (Hons), MSc, MI Soil Sci
Senior Environmental Consultant

Dr. Barry Powell
BSc (Hons), PhD, MCIWM
Principal Consultant

(for and on behalf of Terragen Environmental Consultants Limited)

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LIMITATIONS AND USE OF THE REPORT

IMPORTANT: This section should be read before reliance is placed on any of the opinions, advice, recommendations or conclusions set out in this report.

a) This report has been prepared for the purpose of providing interpretation on analytical results supplied by the Client pursuant to its appointment of Terragen Environmental Consultants Limited to act as a Consultant.

b) These comments are given in good faith on the basis of the results provided. Terragen Environmental Consultants Limited can bear no responsibility for any inaccuracies that may arise from the laboratory testing.

c) This report does not constitute a qualitative risk assessment of the site or the soils and is not based upon a conceptual site model as we have been provided with insufficient information to establish the existence of potential sources of contamination, plausible pathways, or sensitive receptors and therefore assumes that they exist.

d) The report is unable to comment on the potential risks to controlled waters (groundwater or surface water), although where contaminant concentrations are below relevant threshold criteria in most circumstances it may be considered that the risk is low.

e) We have assumed that the results are representative of the area sampled. This does not imply that they may be considered representative of the site itself. Terragen Environmental Consultants Limited can accept no responsibility for the integrity of the sampling regime.

f) Save for the Client no duty is undertaken or warranty or representation made to any party in respect of the opinions, advice, recommendations or conclusions herein set out.

g) All work carried out in preparing this report has used, and is based upon, our professional knowledge and understanding of the current relevant English and European Community standards, approved codes of practice, technology and legislation.
Changes in the above may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Terragen Environmental Consultants Limited has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, we will have no obligation to advise the Client of any such changes, or of their repercussions.

h) Terragen Environmental Consultants Limited acknowledges that it is being retained, in part, because of its knowledge and experience with respect to environmental matters. Terragen Environmental Consultants Limited will consider and analyse all information provided to it in the context of our knowledge and experience and all other relevant information known to us. To the extent that the information provided to us is not inconsistent or incompatible therewith, Terragen Environmental Consultants Limited shall be entitled to rely upon and assume, without independent verification, the accuracy and completeness of such information.

i) The content of this report represents the professional opinion of experienced environmental consultants. Terragen Environmental Consultants Limited does not provide specialist legal advice and the advice of lawyers may be required.

j) In the Summary and Recommendations sections of this report, Terragen Environmental Consultants Limited has set out our key findings and provided a summary and overview of our advice, opinions and recommendations. However, other parts of this report will often indicate the limitations of the information obtained by Terragen Environmental Consultants Limited and therefore any advice, opinions or recommendations set out in the Executive Summary, Summary and Recommendations sections ought not to be relied upon unless they are considered in the context of the whole report.

k) The lack of evidence of the presence of hazardous or harmful materials at the subject property does not guarantee the absence of such materials; rather it indicates only that none were found as a result of the services provided. The services described in this report were performed in accordance with the general practices and procedures accepted in the consulting field.

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Appendix A
Maximum permissible concentrations for imported capping layer soils.

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Appendix C. Maximum Permissible Concentrations for Imported Capping Layer Soils

Determinant		Maximum permissible concentration[1] (mg/kg)[2] 6% SOM	Rationale
Arsenic		30	GAC[4]
Beryllium		1.7	GAC[4]
Boron (water soluble)		5	Lower limit for potential phytotoxic effect[5]
Cadmium		85.3	GAC[4]
Chromium (III)		887	GAC[4]
Chromium (VI)		5.75	GAC[4]
Lead		310	C4SL[10]
Mercury		75.3	GAC[4]
Selenium		596	GAC[4]
Copper		135[3]	BS 3882:2015 Specification for Topsoil[3]
Nickel		75[3]	BS 3882:2015 Specification for Topsoil[3]
Zinc		200[3]	BS 3882:2015 Specification for Topsoil[3]
Vanadium		651	GAC[4]
Benzo(a)pyrene		3.2	GAC[4]
Benzo(a)anthracene		15	GAC[4]
Benzo(b)fluoranthene		4.06	GAC[4]
Benzo(k)fluoranthene		107	GAC[4]
Chrysene		31.9	GAC[4]
Dibenzo(a,h)anthracene		0.34	GAC[4]
Indeno(1,2,3-cd)pyrene		46.2	GAC[4]
Naphthalene		12.4	GAC[4]
TPH aliphatic[6]	EC5-6	107	GAC[4]
	EC>6-8	328	GAC[4]
	EC>8-10	87.7	GAC[4]
	EC>10-12	453	GAC[4]
	EC>12-16	1,000[7]	Hazardous waste threshold[7]
	EC>16-35	1,000[7]	Hazardous waste threshold[7]
TPH aromatic[6]	EC5-7	1.42	GAC[4]
	EC>7-8	1,000[7]	GAC[4] / Hazardous waste threshold[7]
	EC>8-10	144	GAC[4]
	EC>10-12	720	GAC[4]
	EC>12-16	1,000[7]	GAC[4] / Hazardous waste threshold[7]
	EC>16-21	1,000[7]	GAC[4] / Hazardous waste threshold[7]
	EC>21-35	1,000[7]	Hazardous waste threshold[7]
Sum of TPH aliphatic & aromatic C5-C10		< 1,000	Hazardous waste thresholds[8] (C10+ MPC based on threshold for C25+)
Sum of TPH aliphatic & aromatic C10+		< 1,000	
pH		5-10	
Monohydric Phenols		2,310	GAC[4]
Free Cyanide		34	GAC[11]
Asbestos		No detectable fibres[9]	

Notes:

1. These maximum permissible concentrations (MPCs) are import criteria only and are not necessarily appropriate for human health risk assessment.
2. In mg/kg dry soil except pH and asbestos.
3. British Standard BS3882:2015 Specification for Topsoil and requirements for use. Table 1. Values taken for pH 6-7.
4. Generic Assessment Criteria generated 'in-house' based on CLEA model Version 1.071.
5. Nable, Banuelos and Paul. (1997). *Boron Toxicity*. Plant and Soil, **Vol. 193**, pp1 81-198.
6. Speciated TPH values must not exceed individual GAC. Assessment of sum of TPH must also be made against hazardous waste threshold to confirm imported soils do not classify as hazardous material.
7. GAC derived MPC for TPH fraction limited to 1,000mg/kg based on 'waste thresholds'.
8. Environment Agency. (2007). *A Guide to Hazardous Waste Regulations: How to find out if waste oil and waste that contain oil are hazardous*. HWR08.
9. Laboratory screen by microscopy may be required subject to source of material.
10. Published C4SL for lead (DEFRA, 2014)
11. GAC for free cyanide derived by Atkins based on acute exposure for a 0-6 year old child

Appendix B
Source Verification Reports.

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TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Green-tech Ltd

Mr Mark Wood
Green-tech Ltd
Rabbit Hill Park
Great North Road
Arkendale
Knaresborough
North Yorkshire HG5 0FF

5th June 2025
Our Ref: TOHA/25/1832/5/SS
Your Ref: PO 442179

Dear Sirs

Topsoil Analysis Report: Rabbit Hill Topsoil

We have completed the analysis of the soil sample recently collected from site, referenced *Rabbit Hill Topsoil* and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for topsoil and requirements for use – Table 1, Multipurpose Topsoil).*

This report presents the results of analysis for the sample collected on 16/05/2025, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing, especially after the topsoil has left the Green-tech Ltd site.

SAMPLING

The topsoil was examined and sampled at the Green-tech Ltd source at Rabbit Hill Business Park on 16/05/2025 by Helen Stanley of Tim O'Hare Associates LLP. A representative composite soil sample was collected in accordance with Section 5 (*Sampling of topsoil*) of the British Standard for Topsoil (*BS3882:2015 Specification for Topsoil*).



Plate 1: Heap of Rabbit Hill Topsoil.



Plate 2: Rabbit Hill Topsoil.

Visual Examination

At the time of our visit the soil was stored within a large stockpile, located within a 3-sided loading bay area within the main soils yard. A smaller pile was prepared from which to take a sample.

The topsoil was described as a dark reddish brown (Munsell Colour 10YR 3/3), moist, friable, non-calcareous LOAMY SAND with a single grain structure. The soil was stone-free and contained a low proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (5 sands, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn, B);
- total cyanide and total (mono) phenols;
- aromatic and aliphatic TPH (C5-C35 banding);
- speciated PAHs (US EPA16 suite);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Detailed Particle Size Analysis and Stone Content

The sample fell into the *loamy sand* texture class. Further detailed particle size analysis revealed the sample to have a sufficiently narrow particle size distribution and a predominance of *fine sand* (0.15-0.25mm) and *medium sand* (0.25-0.50mm). This is usually ideal for topsoil in general landscape applications as reasonable porosity levels are generally maintained in a consolidated state and the risk of particle interpacking is reduced.

The sample was stone-free and as such, stones would not restrict the use of the soil for general landscape purposes.

Green-tech Ltd

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.4). This pH value would be considered suitable for general landscape purposes provided species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was moderate, which indicates that soluble salts should not be present at levels that would be harmful to plants.

The electrical conductivity value by $CaSO_4$ extract (*BS3882* requirement) fell below the maximum specified value (3300 µS/cm) given in *BS3882:2015 – Table 1*.

Organic Matter and Fertility Status

The sample was adequately to well supplied with organic matter and all major plant nutrients.

The C:N ratio of the sample was acceptable for general landscape purposes.

Potential Contaminants

With reference to *BS3882:2015 - Table 1*: Notes 3 and 4, there is a requirement to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with home grown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels* (C4SLs) *for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS3882:2015 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil sample for general landscape purposes. The analysis has also been undertaken to determine the sample's compliance with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for topsoil and requirements for use – Table 1, Multipurpose Topsoil).*

From the soil examination and subsequent laboratory analysis, the sample was described as a strongly alkaline, non-saline, non-calcareous, stone-free *loamy sand* with a single grain structure. The sample contained sufficient reserves of organic matter and all major plant nutrients. Of the potential contaminants determined, none exceeded their respective guideline values.

To conclude, based on our findings, the topsoil represented by this sample would be considered suitable for general landscape purposes (trees, shrubs and amenity grass), provided the physical condition of the soil is maintained.

The topsoil was also fully compliant with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil).*

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General Landscape Environments

Rootballed Trees

The most demanding planting environment is semi-mature, pit planted trees. Trees of this size and age have grown accustomed to optimum growing conditions in the nursery, and these need to be replicated when the rootballed or containerised tree is planted in the pit. In particular, aeration and drainage around the rootball are critical. Without these properties, trees will very quickly suffer and possibly die during their first few growing seasons after planting.

Shrubs

Containerised shrubs are generally more tolerant of a wider range of soil-types, and they require less topsoil to root into than trees. The topsoil would be suited to a range of shrubs typically used in commercial and domestic landscaping.

Forestry Stock

Less demanding planting habitats include indigenous woodland planting, planted as small whips and feathered trees. The topsoil would be suitable for such planting environments.

Amenity Grass

This soil would be considered suitable for amenity grass seeding and turfing

Sports Pitches

This soil is suited for sports pitch construction given its high sand content. However, all materials to be used for sports pitch construction, including topsoil, should be carefully considered in relation to the required performance and standard of the sports pitch.

Domestic Gardens

The horticultural properties of the soil would be suitable for domestic garden applications. In addition, of the potential contaminants determined, none was found at levels that would be considered elevated. However, permissible levels for potential contaminants do vary from site to site. Therefore, the suitability of topsoil represented by this sample for any particular project or development should be confirmed by comparing the results against the site's specific assessment criteria.

Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, respreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of *BS3882:2015.*

Green-tech Ltd

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully

Ross Friar
MEnvSci
Soil Scientist

Aaron Cross
BSc MSc MISoilSci
Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP

Green-tech Ltd

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Client:	**Green-tech Ltd**
Project	**Rabbit Hill Topsoil**
Job:	**Topsoil Analysis - BS3882:2015**
Date:	**05/06/2025**
Job Ref No:	**TOHA/25/1832/5/SS**

Sample Reference			**Rabbit Hill Topsoil**
		Accreditation	
Clay (<0.002mm)	%	UKAS	5
Silt (0.002-0.05mm)	%	UKAS	8
Very Fine Sand (0.05-0.15mm)	%	UKAS	11
Fine Sand (0.15-0.25mm)	%	UKAS	36
Medium Sand (0.25-0.50mm)	%	UKAS	37
Coarse Sand (0.50-1.0mm)	%	UKAS	2
Very Coarse Sand (1.0-2.0mm)	%	UKAS	1
Total Sand (0.05-2.0mm)	%	UKAS	87
Texture Class (UK Classification)	--	UKAS	LS
Stones (2-20mm)	% DW	GLP	0
Stones (20-50mm)	% DW	GLP	0
Stones (>50mm)	% DW	GLP	0
pH Value (1:2.5 water extract)	units	UKAS	8.4
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS	874
Electrical Conductivity (1:2 $CaSO_4$ extract)	uS/cm	UKAS	3004
Exchangeable Sodium Percentage	%	UKAS	4.3
Organic Matter (LOI)	%	UKAS	6.5
Total Nitrogen (Dumas)	%	UKAS	0.50
C : N Ratio	ratio	UKAS	8
Extractable Phosphorus	mg/l	UKAS	66
Extractable Potassium	mg/l	UKAS	1337
Extractable Magnesium	mg/l	UKAS	262
Total Arsenic (As)	mg/kg	MCERTS	2
Total Cadmium (Cd)	mg/kg	MCERTS	< 0.2
Total Chromium (Cr)	mg/kg	MCERTS	5
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS	< 1.8
Total Copper (Cu)	mg/kg	MCERTS	18
Total Lead (Pb)	mg/kg	MCERTS	12
Total Mercury (Hg)	mg/kg	MCERTS	< 0.3
Total Nickel (Ni)	mg/kg	MCERTS	6
Total Selenium (Se)	mg/kg	MCERTS	< 1.0
Total Zinc (Zn)	mg/kg	MCERTS	48
Water Soluble Boron (B)	mg/kg	MCERTS	1.2
Total Cyanide (CN)	mg/kg	MCERTS	< 1.0
Total (mono) Phenols	mg/kg	MCERTS	< 1.0
Naphthalene	mg/kg	MCERTS	< 0.05
Acenaphthylene	mg/kg	MCERTS	< 0.05
Acenaphthene	mg/kg	MCERTS	< 0.05
Fluorene	mg/kg	MCERTS	< 0.05
Phenanthrene	mg/kg	MCERTS	< 0.05
Anthracene	mg/kg	MCERTS	< 0.05
Fluoranthene	mg/kg	MCERTS	0.06
Pyrene	mg/kg	MCERTS	0.06
Benzo(a)anthracene	mg/kg	MCERTS	< 0.05
Chrysene	mg/kg	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS	< 0.05
Dibenzo(a,h)anthracene	mg/kg	MCERTS	< 0.05
Benzo(g,h,i)perylene	mg/kg	MCERTS	< 0.05
Total PAHs (sum USEPA16)	mg/kg	MCERTS	< 0.80
Aliphatic TPH >C5 - C6	mg/kg	MCERTS	< 0.010
Aliphatic TPH >C6 - C8	mg/kg	MCERTS	< 0.010
Aliphatic TPH >C8 - C10	mg/kg	MCERTS	< 0.010
Aliphatic TPH >C10 - C12	mg/kg	MCERTS	< 1.0
Aliphatic TPH >C12 - C16	mg/kg	MCERTS	< 2.0
Aliphatic TPH >C16 - C21	mg/kg	MCERTS	< 8.0
Aliphatic TPH >C21 - C35	mg/kg	MCERTS	< 8.0
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS	< 10
Aromatic TPH >C5 - C7	mg/kg	MCERTS	< 0.010
Aromatic TPH >C7 - C8	mg/kg	MCERTS	< 0.010
Aromatic TPH >C8 - C10	mg/kg	MCERTS	< 0.020
Aromatic TPH >C10 - C12	mg/kg	MCERTS	< 1.0
Aromatic TPH >C12 - C16	mg/kg	MCERTS	< 2.0
Aromatic TPH >C16 - C21	mg/kg	MCERTS	< 10
Aromatic TPH >C21 - C35	mg/kg	MCERTS	< 10
Aromatic TPH (C5 - C35)	mg/kg	MCERTS	< 10
Benzene	mg/kg	MCERTS	< 0.005
Toluene	mg/kg	MCERTS	< 0.005
Ethylbenzene	mg/kg	MCERTS	< 0.005
p & m-xylene	mg/kg	MCERTS	< 0.008
o-xylene	mg/kg	MCERTS	< 0.005
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS	< 0.005
Asbestos	ND/D	ISO 17025	Not-detected

LS = LOAMY SAND

Visual Examination

The topsoil was described as a dark reddish brown (Munsell Colour 10YR 3/3), moist, friable, non-calcareous LOAMY SAND with a single grain structure. The soil was stone-free and contained a low proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Ross Friar
MEnvSci
Soil Scientist

Results of analysis should be read in conjunction with the report they were issued with

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Green-tech Ltd

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Green-tech Ltd

Mr Mark Wood
Green-tech Ltd
Rabbit Hill Park
Great North Road
Arkendale
Knaresborough
North Yorkshire HG5 0FF

5th June 2025
Our Ref: TOHA/25/1832/4/SS
Your Ref: PO 442179

Dear Sirs

Subsoil Analysis Report: Barnsdale GT Subsoil

We have completed the analysis of the soil sample recently collected from site, referenced *Barnsdale GT Subsoil,* and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for use as subsoil for general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Subsoil *(BS8601:2013 – Specification for subsoil and requirements for use – Table 1, Multipurpose Subsoil),* including analysis of potential contaminants.

This report presents the results of analysis for the sample collected on 16/05/2025, and it should be considered 'indicative' of the subsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing, especially after the subsoil has left the Green-tech Ltd site.

SAMPLING

The subsoil was examined and sampled at the Green-tech Ltd source at Barnsdale Bar Quarry on 16/05/2025 by Helen Stanley of Tim O'Hare Associates LLP. A representative composite soil sample was collected in accordance with Section 5 (*Sampling of topsoil*) of the British Standard for Subsoil (*BS8601:2013 Specification for Subsoil*).



Plate 1: Stockpiled Barnsdale GT Subsoil.



Plate 2: Barnsdale GT Subsoil.

Visual Examination

At the time of our visit, the soil was stored on site in 1 No. loosely heaped stockpile.

The subsoil was described as a reddish yellow (Munsell Colour 5YR 6/6), slightly moist, non-plastic, very calcareous, LOAMY SAND with a single grain structure. The soil was stone-free, and no unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (% 5 sands, silt, clay);
- stone content (2-20mm, 20-75mm, >75mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- organic matter content;
- heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn, B);
- total cyanide and total (mono) phenols;
- aromatic and aliphatic TPH (C5-C35 banding);
- speciated PAHs (US EPA16 suite);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *loamy sand* texture class. Further detailed particle size analysis revealed the sample to have a relatively narrow particle size distribution and large proportion of sand falling into the *fine sand* (0.15-0.25mm) and *medium sand* (0.25-0.50mm) classes. This would be considered suitable for subsoil in general landscape applications.

The sample was stone-free and, as such, stones should not restrict the use of the soil for use as subsoil in general landscape purposes.

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pH and Electrical Conductivity Values

The sample was extremely alkaline in reaction (pH 8.9). This pH value would be considered only be considered suitable as subsoil for landscape applications where species tolerant of alkaline, calcareous soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was low, which indicates that soluble salts were not present at levels that would be harmful to plants.

The electrical conductivity value by $CaSO_4$ extract (*BS8601* requirement) fell below the maximum specified value (2800 µS/cm) given in *BS8601:2013 – Table 1*.

Organic Matter Content

The organic matter content was low (<0.5%) and compliant with *BS8601:2013 – Table 1*.

Potential Contaminants

With reference to *BS8601:2013 – Section 4.2: Note 2*, there is a requirement to confirm levels of potential contaminants in relation to the subsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations of selected potential contaminants that affect human health have been assessed for the concentrations that affect human health have been assessed for *residential* end-use against the Suitable For Use Levels (S4ULs) presented in the LQM/CIEH S4ULs for Human Health Risk Assessment (2015) and the DEFRA SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document (2014).

Of the potential contaminants determined, none exceeded their respective guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS8601:2013 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the sample for use as subsoil for general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Subsoil *(BS8601:2013 – Specification for subsoil and requirements for use – Table 1, Multipurpose Subsoil),* including analysis of potential contaminants.

From the soil examination and subsequent laboratory analysis, the sample was described as an extremely alkaline, non-saline, very calcareous, stone-free *loamy sand* with a single grain structure. The organic matter content was low and consistent with that of subsoil. Of the potential contaminants determined, none exceeded their respective guideline values.

To conclude, based on our findings, the soil represented by this sample would be considered suitable as subsoil for landscape applications provided species tolerant of alkaline, calcareous soils are selected, and the physical condition of the soil is satisfactory.

The sample was not compliant with the requirements of the British Standard for Subsoil *(BS8601:2013 – Specification for subsoil and requirements for use – Table 1, Multipurpose Subsoil)* due the high pH value.

Green-tech Ltd

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully





Ross Friar
MEnvSci
Soil Scientist

Aaron Cross
BSc MSc MISoilSci
Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP

Green-tech Ltd

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Client:	**Green-tech Ltd**
Project:	**Barnsdale GT Subsoil**
Job:	**Subsoil Analysis (BS8601:2013)**
Date:	**05/05/2025**
Job Ref No:	**TOHA/25/1832/4/SS**

Sample Reference			**Barnsdale GT Subsoil**
		Accreditation	
Clay (<0.002mm)	%	UKAS	4
Silt (0.002-0.063mm)	%	UKAS	11
Very Fine Sand (0.063-0.15mm)	%	UKAS	16
Fine Sand (0.15-0.25mm)	%	UKAS	37
Medium Sand (0.25-0.50mm)	%	UKAS	29
Coarse Sand (0.50-1.0mm)	%	UKAS	2
Very Coarse Sand (1.0-2.0mm)	%	UKAS	1
Total Sand (0.063-2.0mm)	%	UKAS	85
Texture Class (UK Classification)	--	UKAS	LS
Stones (2-20mm)	% DW	GLP	0
Stones (20-75mm)	% DW	GLP	0
Stones (>75mm)	% DW	GLP	0
pH Value (1:2.5 water extract)	units	UKAS	8.9
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS	121
Electrical Conductivity (1:2 CaSO extract)	uS/cm	UKAS	2071
Organic Matter (LOI)	%	UKAS	<0.5
Exchangeable Sodium Percentage	%	UKAS	0.8
Total Arsenic (As)	mg/kg	MCERTS	1
Total Cadmium (Cd)	mg/kg	MCERTS	< 0.2
Total Chromium (Cr)	mg/kg	MCERTS	5
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS	< 1.8
Total Copper (Cu)	mg/kg	MCERTS	9
Total Lead (Pb)	mg/kg	MCERTS	8
Total Mercury (Hg)	mg/kg	MCERTS	< 0.3
Total Nickel (Ni)	mg/kg	MCERTS	5
Total Selenium (Se)	mg/kg	MCERTS	< 1.0
Total Zinc (Zn)	mg/kg	MCERTS	32
Water Soluble Boron (B)	mg/kg	MCERTS	< 0.2
Total Cyanide (CN)	mg/kg	MCERTS	< 1.0
Total (mono) Phenols	mg/kg	MCERTS	< 1.0
Naphthalene	mg/kg	MCERTS	< 0.05
Acenaphthylene	mg/kg	MCERTS	< 0.05
Acenaphthene	mg/kg	MCERTS	< 0.05
Fluorene	mg/kg	MCERTS	< 0.05
Phenanthrene	mg/kg	MCERTS	< 0.05
Anthracene	mg/kg	MCERTS	< 0.05
Fluoranthene	mg/kg	MCERTS	< 0.05
Pyrene	mg/kg	MCERTS	< 0.05
Benz(a)anthracene	mg/kg	MCERTS	< 0.05
Chrysene	mg/kg	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS	< 0.05
Dibenzo(a,h)anthracene	mg/kg	MCERTS	< 0.05
Benzo(g,h,i)perylene	mg/kg	MCERTS	< 0.05
Total PAHs (sum USEPA16)	mg/kg	MCERTS	< 0.80
Aliphatic TPH >C5 - C6	mg/kg	MCERTS	< 0.010
Aliphatic TPH >C6 - C8	mg/kg	MCERTS	< 0.010
Aliphatic TPH >C8 - C10	mg/kg	MCERTS	< 0.010
Aliphatic TPH >C10 - C12	mg/kg	MCERTS	< 1.0
Aliphatic TPH >C12 - C16	mg/kg	MCERTS	< 2.0
Aliphatic TPH >C16 - C21	mg/kg	MCERTS	< 8.0
Aliphatic TPH >C21 - C35	mg/kg	MCERTS	< 8.0
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS	< 10
Aromatic TPH >C5 - C7	mg/kg	MCERTS	< 0.010
Aromatic TPH >C7 - C8	mg/kg	MCERTS	< 0.010
Aromatic TPH >C8 - C10	mg/kg	MCERTS	< 0.020
Aromatic TPH >C10 - C12	mg/kg	MCERTS	< 1.0
Aromatic TPH >C12 - C16	mg/kg	MCERTS	< 2.0
Aromatic TPH >C16 - C21	mg/kg	MCERTS	< 10
Aromatic TPH >C21 - C35	mg/kg	MCERTS	< 10
Aromatic TPH (C5 - C35)	mg/kg	MCERTS	< 10
Benzene	mg/kg	MCERTS	< 0.005
Toluene	mg/kg	MCERTS	< 0.005
Ethylbenzene	mg/kg	MCERTS	< 0.005
p & m-xylene	mg/kg	MCERTS	< 0.008
o-xylene	mg/kg	MCERTS	< 0.005
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS	< 0.005
Asbestos	ND/D	ISO 17025	Not-detected

LS = LOAMY SAND

Visual Examination

The subsoil was described as a reddish yellow (Munsell Colour 5YR 6/6), slightly moist, non-plastic, very calcareous, LOAMY SAND with a single grain structure. The soil was stone-free, and no unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

R. Friar

Ross Friar
MEnvSci
Soil Scientist

Results of analysis should be read in conjunction with the report they were issued with

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Green-tech Ltd

Appendix C
Soil Delivery Notes.

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TRANSPORT TICKET

TEL: +44 (0)208 327 4177

DELIVERY / COLLECTION NOTE :

NUMBER:

DATE: 6/8/25

VEHICLE REG: GN72 ZPB

TRAILER NO: 0165

DRIVER: John W

COLLECT FROM: Petersfield C.

POSTCODE:

CONTACT:

DELIVER TO: Ferry Island

POSTCODE:

CONTACT:

DETAILS OF CALL OFF OR REF NUMBER FOR ITEMS:

15 x BAGS OF Top Soil

COLLECTION:		DELIVERY:	
TIME ON SITE: 11.45	TIME OFF SITE: 15:50	TIME ON SITE:	TIME OFF SITE:
Name:		Name:	
Sign:		Sign:	

ALL GOODS CARRIED AS PER THE RHA TERMS & CONDITIONS AVAILABLE ON REQUEST

ANY CUSTOMER ORDERING A VEHICLE OFF THE PUBLIC HIGHWAY DOES SO AT THEIR OWN RISK. ANY DAMA
VEHICLES OR PROPERTY ARE RESPONSIBILITY OF THE PARTY HIRING THE VEHICLE.

Thames Reinforcements Ltd

"DEDICATED TO THE CONSTRUCTION INDUSTRY"

White Copy : Collection Site Yellow Copy : Delivery Site Pink Copy : Office Green Copy : Retain in Bo

TRANSPORT TICKET

TEL: +44 (0)208 327 4177

Y / COLLECTION NOTE :

REG:	TRAILER NO:	DRIVER:	DATE:

FROM:	DELIVER TO:
CODE:	POSTCODE:
NTACT:	CONTACT:

DETAILS OF CALL OFF OR REF NUMBER FOR ITEMS:

Sub-soil

COLLECTION:		DELIVERY:	
TIME ON SITE:	TIME OFF SITE:	TIME ON SITE:	TIME OFF SITE:
Name:		Name: Peter	
Sign:		Sign:	

ALL GOODS CARRIED AS PER THE RHA TERMS & CONDITIONS AVAILABLE ON REQUEST

ANY CUSTOMER ORDERING A VEHICLE OFF THE PUBLIC HIGHWAY DOES SO AT THEIR OWN RISK. ANY DAMAGE TO VEHICLES OR PROPERTY ARE RESPONSIBILITY OF THE PARTY HIRING THE VEHICLE.

Thames Reinforcements Ltd

"DEDICATED TO THE CONSTRUCTION INDUSTRY"

FORS

Appendix D
Laboratory Test Report(s).

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results@tgen.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 25-042070

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)	**Samples received on:**	08/08/2025
Your job number:	TJ3994H02	**Samples instructed on/ Analysis started on:**	08/08/2025
Your order number:	TJ3994H02	**Analysis completed by:**	14/08/2025
Report Issue Number:	1	**Report issued on:**	14/08/2025
Samples Analysed:	3 soil samples		

Signed:

Charlotte Andrew
Key Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 25-042070
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)
Your Order No: TJ3994H02

Lab Sample Number				641050	641051	641052
Sample Reference				Subsoil-1	Subsoil-2	Subsoil-3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/08/2025	07/08/2025	07/08/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	3.1	1.5	2.2
Total mass of sample received	kg	0.1	NONE	0.7	0.7	0.7
Asbestos						
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	PKU	PKU	PKU
Analysis completed	N/A	N/A	N/A	13/08/2025	13/08/2025	13/08/2025
General Inorganics						
pH (L099)	pH Units	N/A	MCERTS	9.1	8.7	7.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	79	79	120
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	13	16	30
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	6.58	8.09	15.1
Sulphide	mg/kg	1	MCERTS	< 1.0	1.2	1.3
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	< 0.1	< 0.1	< 0.1
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85	< 0.85

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 25-042070
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)
Your Order No: TJ3994H02

Lab Sample Number				641050	641051	641052
Sample Reference				Subsoil-1	Subsoil-2	Subsoil-3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/08/2025	07/08/2025	07/08/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	1	1.1	1.7
Barium (aqua regia extractable)	mg/kg	1	MCERTS	7.8	9.9	14
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.15	0.17	0.19
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	3	3.1	4
Copper (aqua regia extractable)	mg/kg	1	MCERTS	8.3	7.3	8.1
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1.1	1.1	1.3
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	< 0.25	< 0.25	< 0.25
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	3.3	3.5	5.1
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	4.1	4.8	4.8
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	8.9	10	43
Petroleum Hydrocarbons						
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	0.062	0.01	0.035
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	0.018	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10
VOCs						
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	60	9.1	34
Toluene	µg/kg	5	MCERTS	18	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 25-042070
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
641050	Subsoil-1	None Supplied	None Supplied	Brown sand with gravel
641051	Subsoil-2	None Supplied	None Supplied	Brown sand with gravel
641052	Subsoil-3	None Supplied	None Supplied	Brown sand with gravel

Analytical Report Number : 25-042070
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

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Analytical Report Number : 25-042070
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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Analytical Report Number : 25-042074

Project / Site name:	Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)	**Samples received on:**	08/08/2025
Your job number:	TJ3994H01	**Samples instructed on/ Analysis started on:**	08/08/2025
Your order number:	TJ3994H01	**Analysis completed by:**	14/08/2025
Report Issue Number:	1	**Report issued on:**	14/08/2025
Samples Analysed:	3 soil samples		

Signed:

Charlotte Andrew
Key Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 25-042074
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)
Your Order No: TJ3994H01

Lab Sample Number				641055	641056	641057
Sample Reference				Topsoil-1	Topsoil-2	Topsoil-3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/08/2025	07/08/2025	07/08/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	2.3	8.3	11
Total mass of sample received	kg	0.1	NONE	0.7	0.7	0.7
Asbestos						
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MBI	MBI	MBI
Analysis completed	N/A	N/A	N/A	13/08/2025	13/08/2025	13/08/2025
General Inorganics						
pH (L099)	pH Units	N/A	MCERTS	8.4	8.4	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	420	400	600
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	220	220	260
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	110	110	130
Sulphide	mg/kg	1	MCERTS	15	18	18
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2	2	1.8
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	0.11	0.19	0.13
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.07	0.1
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.09
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85	< 0.85

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Analytical Report Number: 25-042074
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)
Your Order No: TJ3994H01

Lab Sample Number				641055	641056	641057
Sample Reference				Topsoil-1	Topsoil-2	Topsoil-3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/08/2025	07/08/2025	07/08/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.2	1.8	1.2
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3.6	4.1	3.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	49	47	49
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.56	0.57	0.53
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	1	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	U/S *U/S g	U/S *U/S g	U/S *U/S g
Chromium (VI) by IC	mg/kg	1.8	NONE	< 1.80	< 1.80	< 1.80
Chromium (III) by IC	mg/kg	1	NONE	7.5	7.7	7.3
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	7.5	7.7	7.3
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	27	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	14	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.71	0.72	0.77
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	10	10	10
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	9.1	9.1	9
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	54	54	51
Petroleum Hydrocarbons						
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10
VOCs						
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 25-042074
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
641055	Topsoil-1	None Supplied	None Supplied	Brown sandy loam with gravel
641056	Topsoil-2	None Supplied	None Supplied	Brown sandy loam with gravel and vegetation
641057	Topsoil-3	None Supplied	None Supplied	Brown sandy loam with gravel and vegetation

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 25-042074
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Cr(VI) in soils by Ion chromatography	Determination of hexavalent chromium in alkaline soil extract by use of ion chromatography with spectrophotometric detection	In-house method	L130B	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS

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Analytical Report Number : 25-042074
Project / Site name: Ferry Island, Tottenham Hale (Plot B), High Cross Road, London N17 9NU (JRLE)

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

*U/S g- Unsuitable for analysis due to high colour intensity.

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The results included within the report are representative of the samples submitted for analysis.

Appendix R
Imported Aggregates.

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Appendix R1
Hanson Aggregates Dagenham

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Material Type: Marine Sand

Product: 0/4mm MP Marine Sand

Material Code: 70000112

Basis of Evaluation: HMGS

Mining Site: 6159 Dagenham Wharf

Date of Declaration: 19/02/20

Product List:

% Compliance (only PSD currently)	100.0%

3 samples between 02/09/24 to 06/02/25

Sample Date	Site	Location	Job	Sample No.	Percentage Passing Sieves (mm)																			Moisture %	Flakiness FI	Chloride	U of Conform	Complies
															8	6.3	5	4	2.8	2	1	0.5	0.25	0.125	0.063					
06/02/25	Dagenham Wharf	Bay 1	100/General	AGG-0150202											100	100	100	98	93	89	79	54	11	1	0.5	4.0			3	Yes
07/10/24	Dagenham Wharf	bay 6	100/General	AGG-0140119											100	100	100	99	99	92	83	41	11	2	1.6	4.0			3	Yes
02/09/24	Dagenham Wharf	bay 5	100/General	AGG-0136739											100	100	100	99	99	94	87	50	7	1	0.3	3.4			2	Yes
Target																														
Specified min															**100**	**95**		**90**			**60**	**30**	**0**		**0.0**					
Specified max																**100**		**100**			**100**	**70**	**40**		**3.0**			**0.05**		
Average															100.0	100.0	100.0	98.7	97.0	91.7	83.0	48.3	9.7	1.3	0.8	3.8			3	
Standard Deviation															0.0	0.0	0.0	0.6	3.5	2.5	4.0	6.7	2.3	0.6	0.7	0.3			1	
Minimum Value															100.0	100.0	100.0	98.0	93.0	89.0	79.0	41.0	7.0	1.0	0.3	3.4			2	
Maximum Value															100.0	100.0	100.0	99.0	99.0	94.0	87.0	54.0	11.0	2.0	1.6	4.0			3	

Material Type: Marine Gravel

Product: 10/20mm Marine Gravel Single Size

Material Code: 70000436

Basis of Evaluation: HMGS

Mining Site: 6159 Dagenham Wharf

Date of Declaration: 18/02/20

Product List:

% Compliance (only PSD currently)	100.0%

3 samples between 18/08/25 to 15/10/25

Sample Date	Site	Location	Job	Sample No.	Percentage Passing Sieves (mm)																			Moisture %	Flakiness FI	Chloride	U of Conform	Complies
								40	31.5	20	16	14	12.5	10	8	6.3	5	4	2.8	2	1	0.5	0.25	0.125	0.063					
15/10/25	Dagenham Wharf	Stockpile	100/General	AGG-0171848				100	100	88	88	43	43	12	12	4	4	2	2	1	1	0	0	0	0.0	2.1			2	Yes
17/09/25	Dagenham Wharf	Stockpile	100/General	AGG-0169357				100	100	89	89	40	40	8	8	2	2	1	1	1	1	0	0	0	0.0	1.9		0.010	1	Yes
18/08/25	Dagenham Wharf	Stockpile	100/General	AGG-0166917				100	100	94	94	54	54	9	9	1	1	1	1	0	0	0	0	0	0.0	1.8		0.020	1	Yes
Target																														
Specified min								**100**	**98**	**80**				**0**				**0**							**0.0**					
Specified max									**100**	**100**				**20**				**5**							**1.5**		**35**	**0.04**		
Average								100.0	100.0	90.3	90.3	45.7	45.7	9.7	9.7	2.3	2.3	1.3	1.3	0.7	0.7	0.0	0.0	0.0	0.0	1.9			1	
Standard Deviation								0.0	0.0	3.2	3.2	7.4	7.4	2.1	2.1	1.5	1.5	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.2			1	
Minimum Value								100.0	100.0	88.0	88.0	40.0	40.0	8.0	8.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8		0.010	1	
Maximum Value								100.0	100.0	94.0	94.0	54.0	54.0	12.0	12.0	4.0	4.0	2.0	2.0	1.0	1.0					2.1		0.020	2	

Material Type: Marine Sand

Product: 0/4mm MP Marine Sand

Material Code: 70000112

Basis of Evaluation: HMGS

Mining Site: 6159 Dagenham Wharf

Date of Declaration: 19/02/20 **Product List:** Production

% Compliance (only PSD currently)	100.0%

24 samples between 07/11/22 to 15/10/24

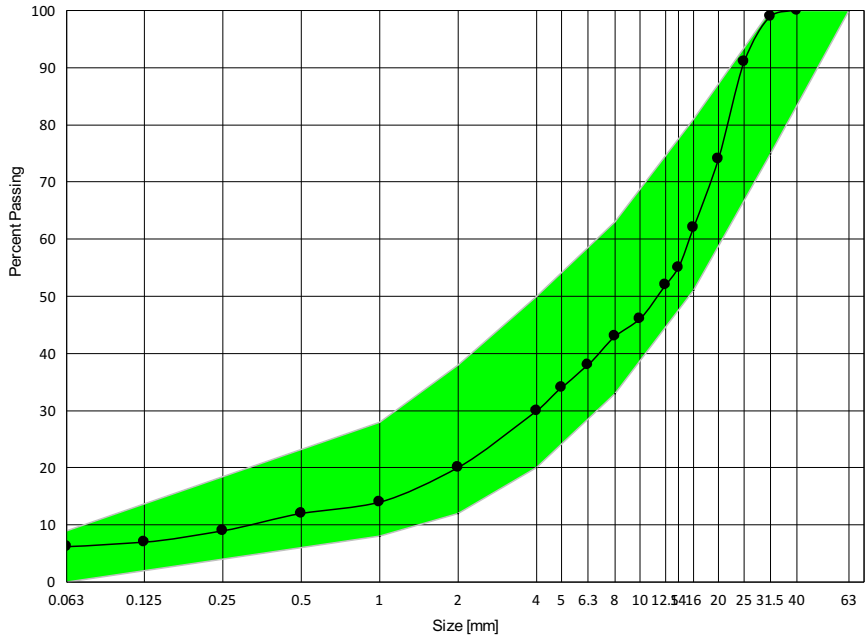
Sample Date	Site	Location	Job	Sample No.		Percentage Passing Sieves (mm) 8	6.3	5	4	2.8	2	1	0.5	0.25	0.125	0.063	Moisture %	Complies
15/10/24	Dagenham Wharf	bay 5	100/General	AGG-0140974		100	100	100	99	99	92	82	31	9	2	0.9	3.8	Yes
10/09/24	Dagenham Wharf	bay 6	100/General	AGG-0137677		100	100	100	98	98	91	83	49	9	2	1.3	4.8	Yes
13/08/24	Dagenham Wharf	sand shed 4	100/General	AGG-0135315		100	100	100	99	99	92	82	50	8	1	0.2	3.9	Yes
09/07/24	Dagenham Wharf	sand shed 5	100/General	AGG-0131915		100	100	100	99	99	93	86	63	14	1	0.5	4.8	Yes
11/06/24	Dagenham Wharf	lorry load out	100/General	AGG-0129462		100	100	100	98	98	91	78	46	14	1	0.3	4.1	Yes
08/05/24	Dagenham Wharf	BAY 6	100/General	AGG-0126295		100	100	100	98	98	90	77	45	6	1	0.4	3.0	Yes
11/04/24	Dagenham Wharf	bay 5	100/General	AGG-0126968		100	100	100	98	98	90	81	54	15	2	0.7	5.4	Yes
12/03/24	dag wharf	bays 5/6	100/General	AGG-0121021		100	100	100	98	95	92	82	56	12	1	0.9	4.7	Yes
09/02/24	dag wharf	bays 4/5	100/General	AGG-0118040		100	100	100	98	98	90	83	62	18	1	0.7	5.5	Yes
09/01/24	dag wharf	Bay 3	100/General	AGG-0114961		100	100	100	100	98	91	83	64	14	3	1.7	5.7	Yes
07/12/23	dag wharf	lorry load out	100/General	AGG-0113383		100	100	100	97	97	92	86	68	14	2	0.8	6.0	Yes
16/11/23	DAG WHARF	bay 2 sand shed	100/General	AGG-0111411		100	100	100	98	98	93	87	68	14	1	0.5	3.3	Yes
16/10/23	DAG WHARF	bay 2 sand shed	100/General	AGG-0108290		100	100	100	98	98	88	78	62	25	5	2.6	4.9	Yes
14/09/23	DAG WHARF	bay 4	100/General	AGG-0105453		100	100	100	99	99	91	85	69	23	3	1.9	4.2	Yes
10/08/23	dag wharf	wharf reserve	100/General	AGG-0101922		100	100	100	98	98	92	87	70	20	3	1.4	6.1	Yes
10/07/23	dag wharf	bay 6 sand shed	100/General	AGG-98742		100	100	100	96	96	87	79	61	20	3	1.8	4.3	Yes
13/06/23	dag wharf	Load Out	100/General	AGG-98389		100	100	100	98	98	91	85	66	13	3	2.1	9.5	Yes
10/05/23	Dagenham Wharf	barge bay	100/General	AGG-93653		100	100	100	97	97	91	85	64	12	3	2.0	5.8	Yes
14/04/23	Dagenham Wharf	barge bay	100/General	AGG-91507		100	100	100	97	97	89	82	60	19	2	1.3	5.6	Yes
06/03/23	Dagenham Wharf	lorry load out	100/General	AGG-87892		100	100	100	98	94	90	81	62	24	4	1.7	5.0	Yes
09/02/23	Dagenham Wharf	barge bay	100/General	AGG-85644		100	100	100	98	98	91	84	62	10	2	1.1	5.7	Yes
13/01/23	Dagenham Wharf		100/General	AGG-83226		100	100	100	96	96	89	82	63	17	2	0.6	6.4	Yes
09/12/22	Dagenham Wharf	BAGGING RESERVE	100/General	AGG-81426		100	100	100	96	96	90	85	70	23	3	1.6	5.0	Yes
07/11/22	Dagenham Wharf	Stockpile	100/General	AGG-78545		100	100	100	97	97	88	80	60	12	1	0.2	4.9	Yes
Target																		
Specified min						**100**	**95**		**90**			**60**	**30**	**0**		**0.0**		
Specified max							**100**		**100**			**100**	**70**	**40**		**3.0**		
Average						100.0	100.0	100.0	97.8	97.5	90.6	82.6	59.4	15.2	2.2	1.1	5.1	
Standard Deviation						0.0	0.0	0.0	1.0	1.3	1.6	2.9	9.4	5.3	1.1	0.7	1.3	
Minimum Value						100.0	100.0	100.0	96.0	94.0	87.0	77.0	31.0	6.0	1.0	0.2	3.0	
Maximum Value						100.0	100.0	100.0	100.0	99.0	93.0	87.0	70.0	25.0	5.0	2.6	9.5	

UKAS TESTING
0812

Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Sub Base 0/32 Limestone SHW 803**
Material Code:	**200017**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**SHW Series 800 / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0156402
Sampled by	Jake Wise
Date Sampled	15/04/2025
Sample location	Stockpile
Moisture Content (%)	**2.1**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	13	7.0 to 30.0	yes
8/16	19	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	100 - 100	Yes
40	100	-	-
31.5	99	75 - 100	Yes
25	91	-	-
20	74	-	-
16	62	51 - 81	Yes
14	55	-	-
12.5	52	-	-
10	46	-	-
8	43	33 - 63	Yes
6.3	38	-	-
5	34	-	-
4	30	20 - 50	Yes
2	20	12 - 38	Yes
1	14	8 - 28	Yes
0.5	12	-	-
0.25	9	-	-
0.125	7	-	-
0.063	6.2	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

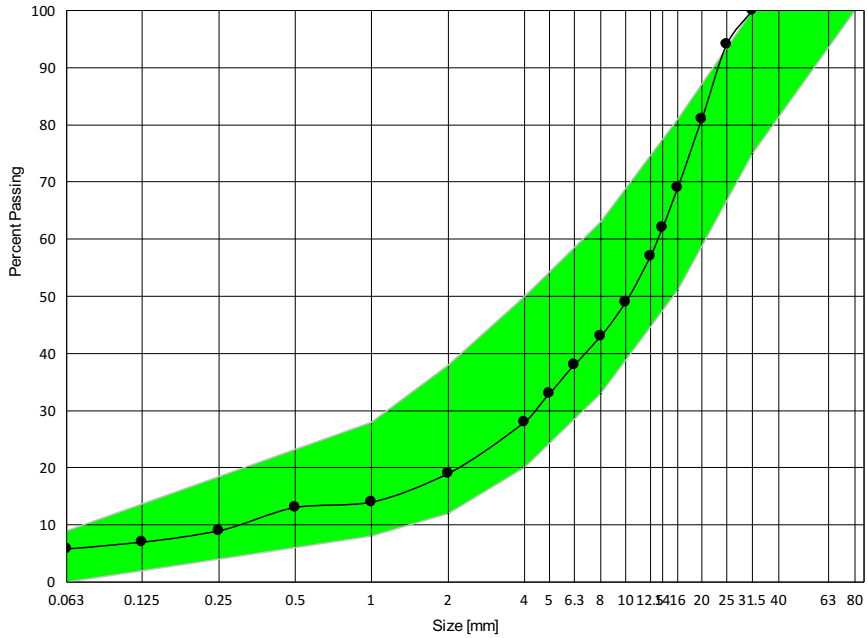
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Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0166755
Sampled by	Luke Menhennet
Date Sampled	15/08/2025
Sample location	Stockpile
Moisture Content (%)	**2.4**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	15	7.0 to 30.0	yes
8/16	26	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	100	75 - 100	Yes
25	94	-	-
20	81	-	-
16	69	51 - 81	Yes
14	62	-	-
12.5	57	-	-
10	49	-	-
8	43	33 - 63	Yes
6.3	38	-	-
5	33	-	-
4	28	20 - 50	Yes
2	19	12 - 38	Yes
1	14	8 - 28	Yes
0.5	13	-	-
0.25	9	-	-
0.125	7	-	-
0.063	5.8	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

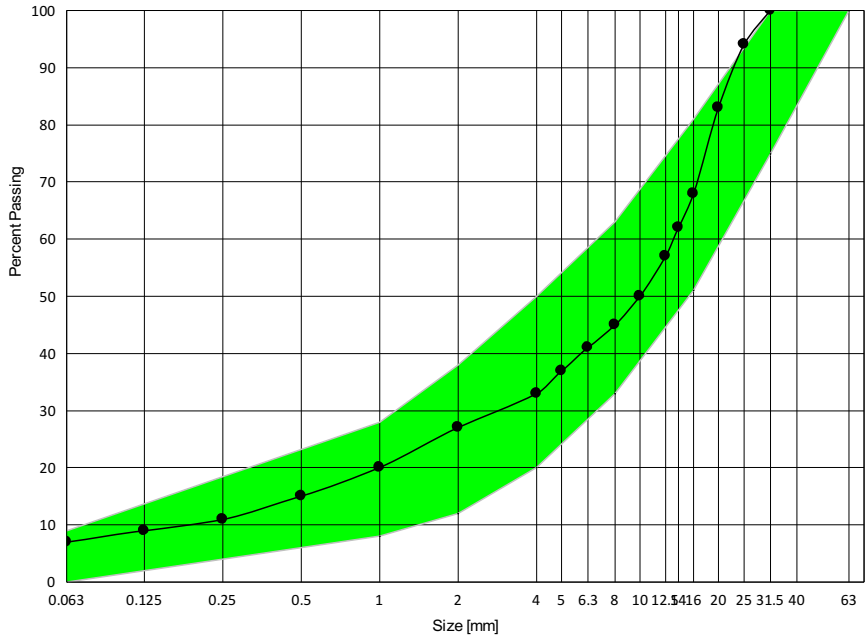
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0812

Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Sub Base 0/32 Limestone SHW 803**
Material Code:	**200017**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**SHW Series 800 / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-82043
Sampled by	Luke Menhennet
Date Sampled	16/12/2022
Sample location	Stockpile PM
Moisture Content (%)	**1.6**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	12	7.0 to 30.0	yes
8/16	23	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	100 - 100	Yes
40	100	-	-
31.5	100	75 - 100	Yes
25	94	-	-
20	83	-	-
16	68	51 - 81	Yes
14	62	-	-
12.5	57	-	-
10	50	-	-
8	45	33 - 63	Yes
6.3	41	-	-
5	37	-	-
4	33	20 - 50	Yes
2	27	12 - 38	Yes
1	20	8 - 28	Yes
0.5	15	-	-
0.25	11	-	-
0.125	9	-	-
0.063	7.0	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

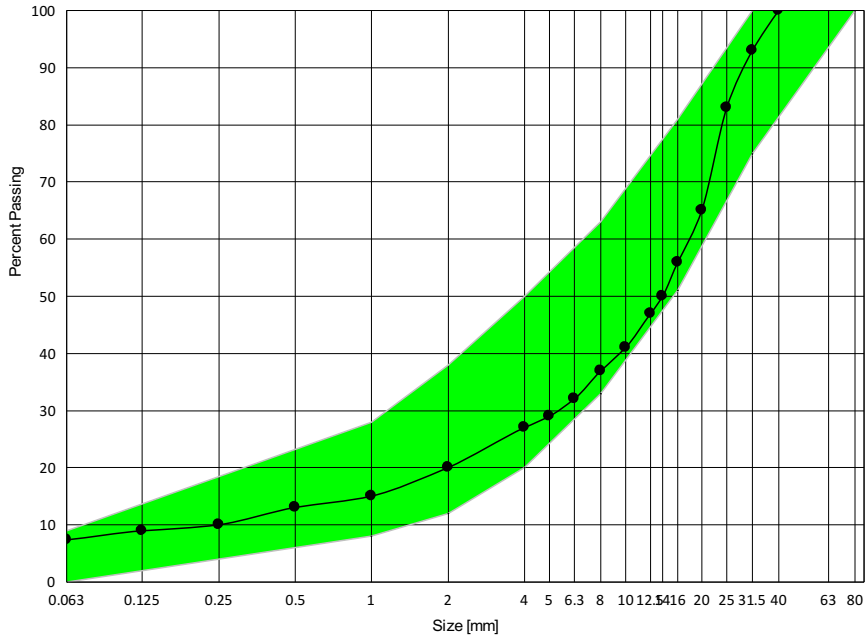
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Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0146697
Sampled by	
Date Sampled	16/12/2024
Sample location	Stockpile
Moisture Content (%)	**3.1**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	10	7.0 to 30.0	yes
8/16	19	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	93	75 - 100	Yes
25	83	-	-
20	65	-	-
16	56	51 - 81	Yes
14	50	-	-
12.5	47	-	-
10	41	-	-
8	37	33 - 63	Yes
6.3	32	-	-
5	29	-	-
4	27	20 - 50	Yes
2	20	12 - 38	Yes
1	15	8 - 28	Yes
0.5	13	-	-
0.25	10	-	-
0.125	9	-	-
0.063	7.4	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

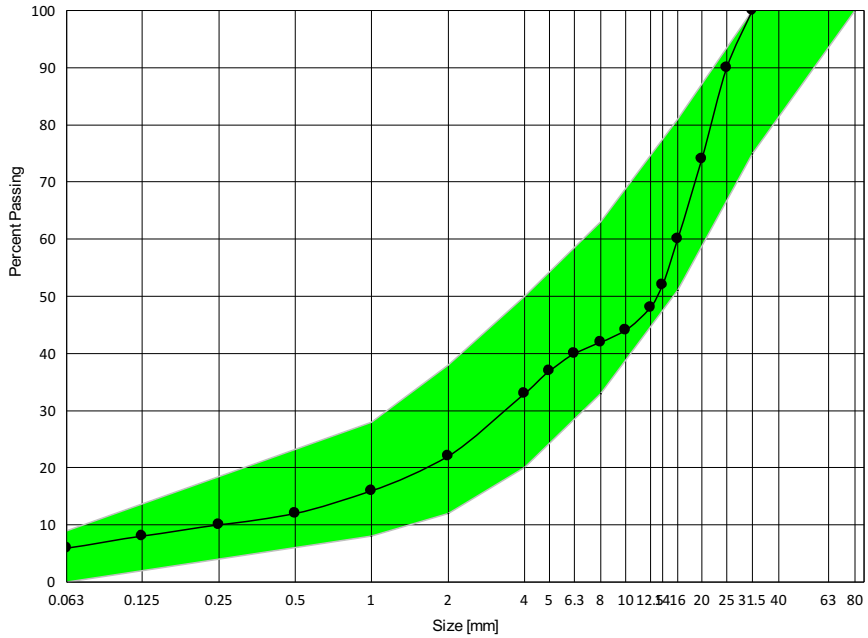
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Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0150947
Sampled by	Jake Wise
Date Sampled	14/02/2025
Sample location	Stockpile
Moisture Content (%)	**2.3**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	9	7.0 to 30.0	yes
8/16	18	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	100	75 - 100	Yes
25	90	-	-
20	74	-	-
16	60	51 - 81	Yes
14	52	-	-
12.5	48	-	-
10	44	-	-
8	42	33 - 63	Yes
6.3	40	-	-
5	37	-	-
4	33	20 - 50	Yes
2	22	12 - 38	Yes
1	16	8 - 28	Yes
0.5	12	-	-
0.25	10	-	-
0.125	8	-	-
0.063	6.0	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

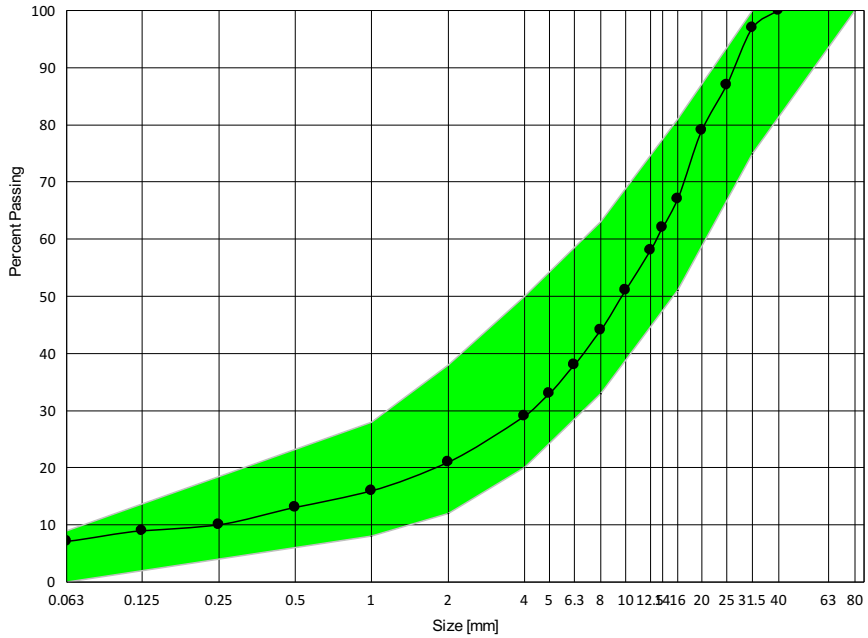
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Heidelberg Materials
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Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0148132
Sampled by	Jake Wise
Date Sampled	15/01/2025
Sample location	Stockpile
Moisture Content (%)	**2.9**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	15	7.0 to 30.0	yes
8/16	23	7.0 to 30.0	yes

Remarks

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Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	97	75 - 100	Yes
25	87	-	-
20	79	-	-
16	67	51 - 81	Yes
14	62	-	-
12.5	58	-	-
10	51	-	-
8	44	33 - 63	Yes
6.3	38	-	-
5	33	-	-
4	29	20 - 50	Yes
2	21	12 - 38	Yes
1	16	8 - 28	Yes
0.5	13	-	-
0.25	10	-	-
0.125	9	-	-
0.063	7.1	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

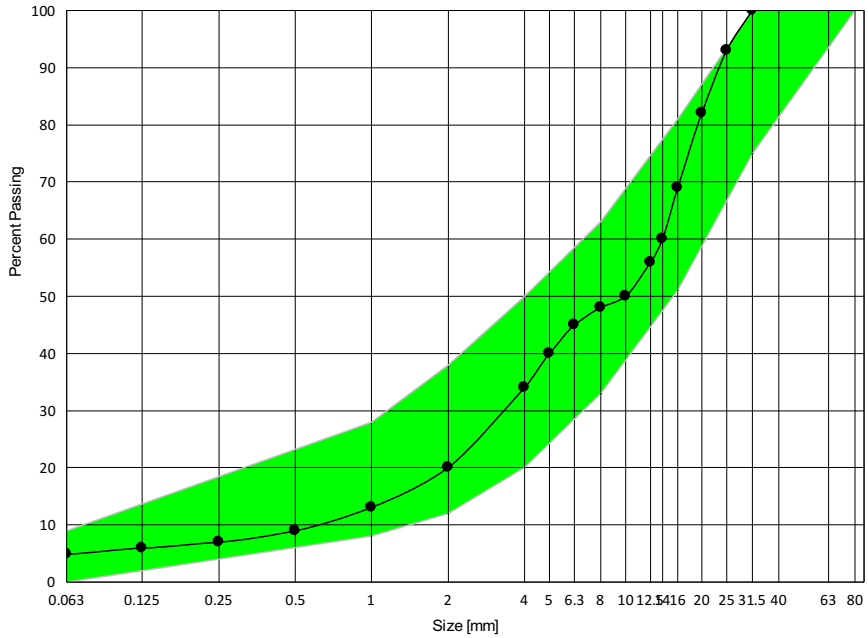
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Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0164098
Sampled by	Jake Wise
Date Sampled	15/07/2025
Sample location	Stockpile
Moisture Content (%)	**3.1**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	14	7.0 to 30.0	yes
8/16	21	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	100	75 - 100	Yes
25	93	-	-
20	82	-	-
16	69	51 - 81	Yes
14	60	-	-
12.5	56	-	-
10	50	-	-
8	48	33 - 63	Yes
6.3	45	-	-
5	40	-	-
4	34	20 - 50	Yes
2	20	12 - 38	Yes
1	13	8 - 28	Yes
0.5	9	-	-
0.25	7	-	-
0.125	6	-	-
0.063	4.9	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

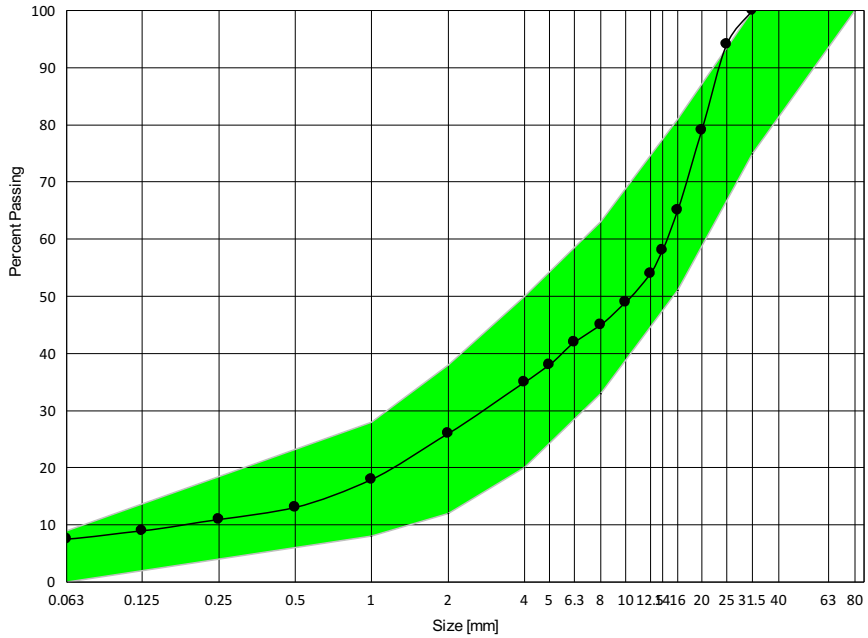
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Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0161627
Sampled by	Jake Wise
Date Sampled	16/06/2025
Sample location	Stockpile
Moisture Content (%)	**3.7**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	10	7.0 to 30.0	yes
8/16	20	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	100	75 - 100	Yes
25	94	-	-
20	79	-	-
16	65	51 - 81	Yes
14	58	-	-
12.5	54	-	-
10	49	-	-
8	45	33 - 63	Yes
6.3	42	-	-
5	38	-	-
4	35	20 - 50	Yes
2	26	12 - 38	Yes
1	18	8 - 28	Yes
0.5	13	-	-
0.25	11	-	-
0.125	9	-	-
0.063	7.5	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

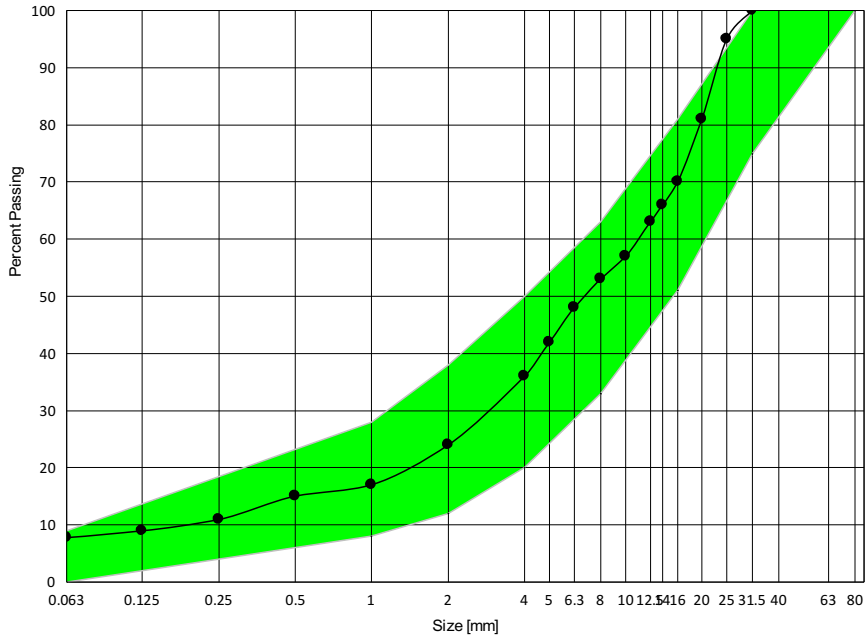
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Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0153492
Sampled by	Jack Rayner
Date Sampled	17/03/2025
Sample location	Stockpile
Moisture Content (%)	**4.1**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	17	7.0 to 30.0	yes
8/16	17	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	100	75 - 100	Yes
25	95	-	-
20	81	-	-
16	70	51 - 81	Yes
14	66	-	-
12.5	63	-	-
10	57	-	-
8	53	33 - 63	Yes
6.3	48	-	-
5	42	-	-
4	36	20 - 50	Yes
2	24	12 - 38	Yes
1	17	8 - 28	Yes
0.5	15	-	-
0.25	11	-	-
0.125	9	-	-
0.063	7.8	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

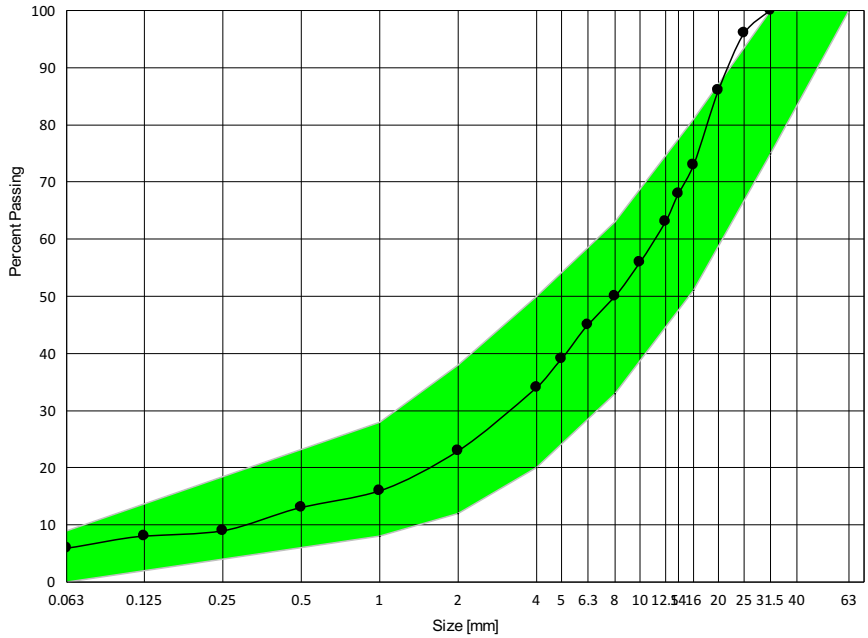
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Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
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BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Sub Base 0/32 Limestone SHW 803**
Material Code:	**200017**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**SHW Series 800 / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0158887
Sampled by	Jake Wise
Date Sampled	15/05/2025
Sample location	Stockpile
Moisture Content (%)	**1.7**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	16	7.0 to 30.0	yes
8/16	23	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	100 - 100	Yes
40	100	-	-
31.5	100	75 - 100	Yes
25	96	-	-
20	86	-	-
16	73	51 - 81	Yes
14	68	-	-
12.5	63	-	-
10	56	-	-
8	50	33 - 63	Yes
6.3	45	-	-
5	39	-	-
4	34	20 - 50	Yes
2	23	12 - 38	Yes
1	16	8 - 28	Yes
0.5	13	-	-
0.25	9	-	-
0.125	8	-	-
0.063	6.0	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

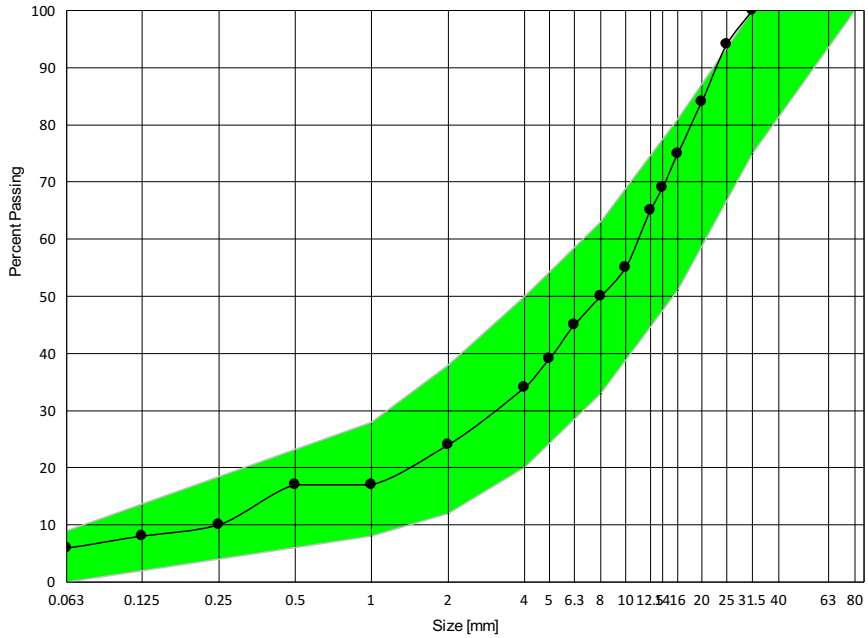
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Heidelberg Materials
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BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0143999
Sampled by	
Date Sampled	15/11/2024
Sample location	Stockpile
Moisture Content (%)	**1.7**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	16	7.0 to 30.0	yes
8/16	25	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	100	75 - 100	Yes
25	94	-	-
20	84	-	-
16	75	51 - 81	Yes
14	69	-	-
12.5	65	-	-
10	55	-	-
8	50	33 - 63	Yes
6.3	45	-	-
5	39	-	-
4	34	20 - 50	Yes
2	24	12 - 38	Yes
1	17	8 - 28	Yes
0.5	17	-	-
0.25	10	-	-
0.125	8	-	-
0.063	5.9	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

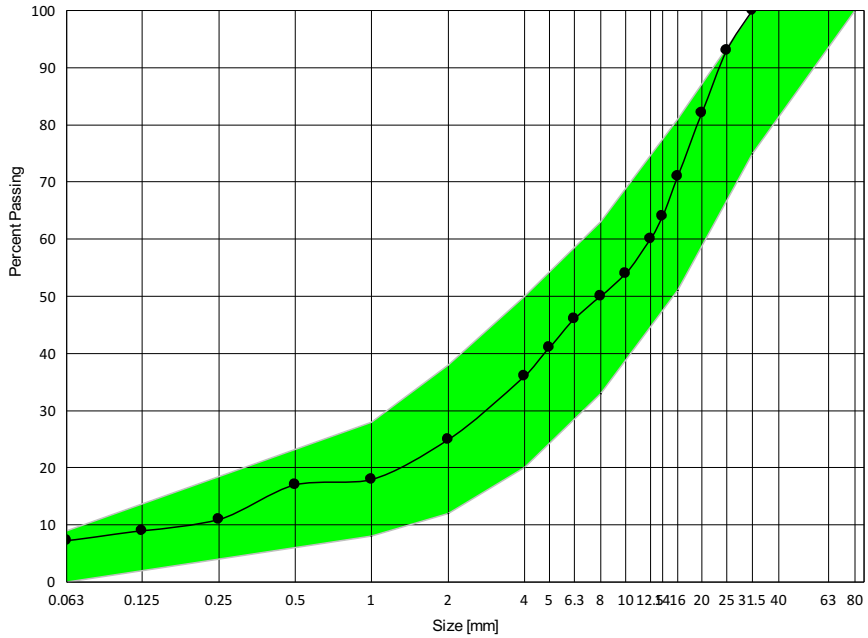
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Ridgewood House
The Ridge
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Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0174363
Sampled by	Jake Wise
Date Sampled	14/11/2025
Sample location	Stockpile
Moisture Content (%)	**4.3**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	14	7.0 to 30.0	yes
8/16	21	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	100	75 - 100	Yes
25	93	-	-
20	82	-	-
16	71	51 - 81	Yes
14	64	-	-
12.5	60	-	-
10	54	-	-
8	50	33 - 63	Yes
6.3	46	-	-
5	41	-	-
4	36	20 - 50	Yes
2	25	12 - 38	Yes
1	18	8 - 28	Yes
0.5	17	-	-
0.25	11	-	-
0.125	9	-	-
0.063	7.2	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

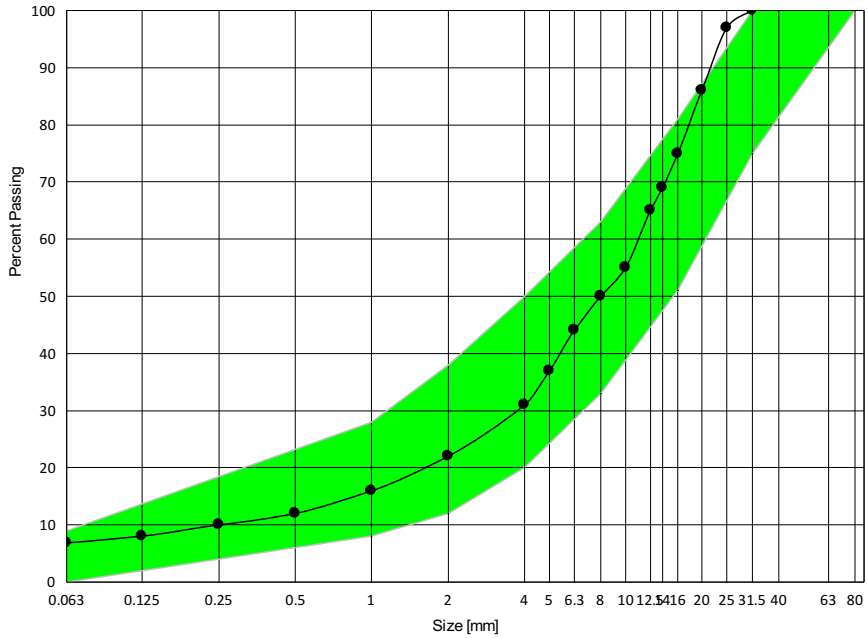
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UKAS TESTING
0812

Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0140999
Sampled by	Andrew Hill
Date Sampled	15/10/2024
Sample location	Stockpile
Moisture Content (%)	**3.0**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	19	7.0 to 30.0	yes
8/16	25	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	100	75 - 100	Yes
25	97	-	-
20	86	-	-
16	75	51 - 81	Yes
14	69	-	-
12.5	65	-	-
10	55	-	-
8	50	33 - 63	Yes
6.3	44	-	-
5	37	-	-
4	31	20 - 50	Yes
2	22	12 - 38	Yes
1	16	8 - 28	Yes
0.5	12	-	-
0.25	10	-	-
0.125	8	-	-
0.063	6.8	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

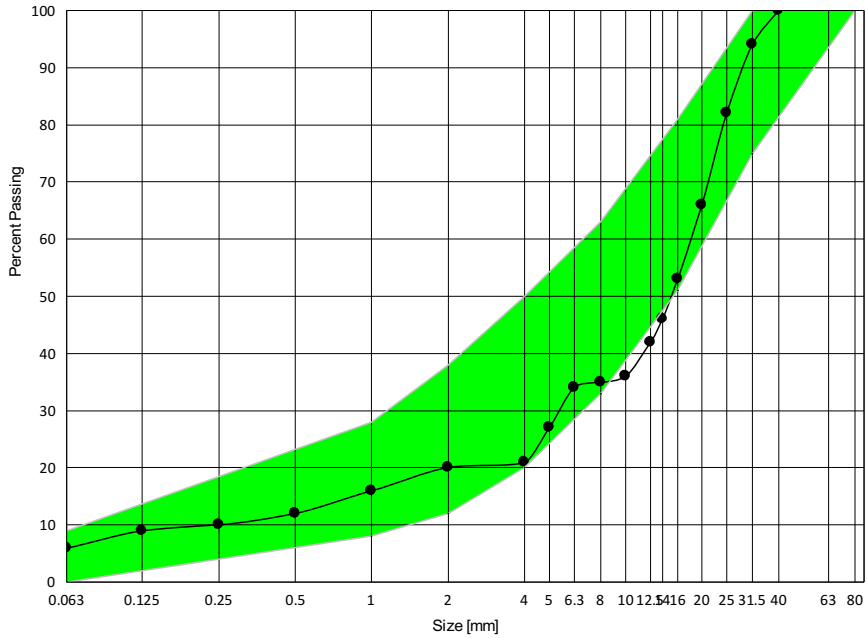
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UKAS TESTING
0812

Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0171624
Sampled by	Jake Wise
Date Sampled	15/10/2025
Sample location	Stockpile
Moisture Content (%)	**2.8**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	14	7.0 to 30.0	yes
8/16	18	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	94	75 - 100	Yes
25	82	-	-
20	66	-	-
16	53	51 - 81	Yes
14	46	-	-
12.5	42	-	-
10	36	-	-
8	35	33 - 63	Yes
6.3	34	-	-
5	27	-	-
4	21	20 - 50	Yes
2	20	12 - 38	Yes
1	16	8 - 28	Yes
0.5	12	-	-
0.25	10	-	-
0.125	9	-	-
0.063	5.9	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

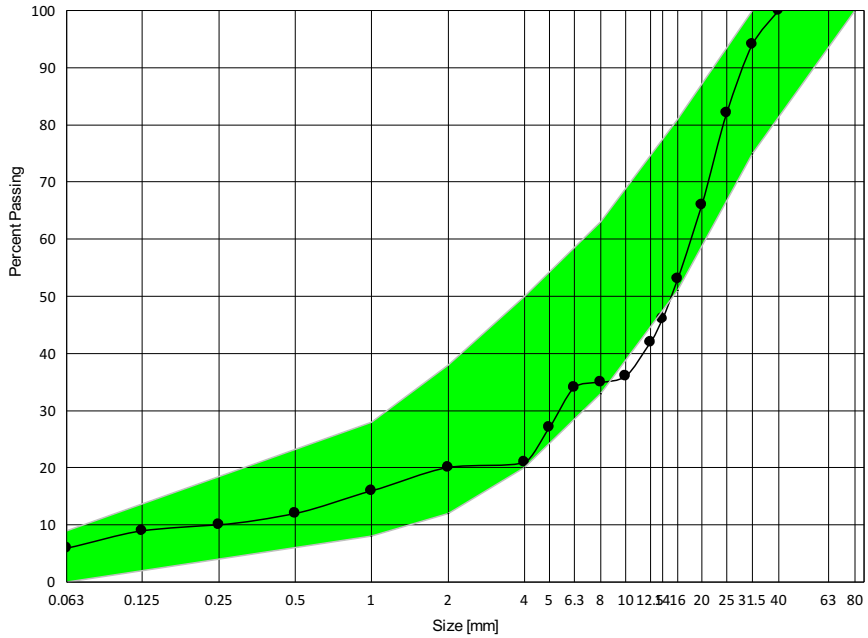
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UKAS TESTING
0812

Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0171624
Sampled by	Jake Wise
Date Sampled	15/10/2025
Sample location	Stockpile
Moisture Content (%)	**2.8**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	14	7.0 to 30.0	yes
8/16	18	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	94	75 - 100	Yes
25	82	-	-
20	66	-	-
16	53	51 - 81	Yes
14	46	-	-
12.5	42	-	-
10	36	-	-
8	35	33 - 63	Yes
6.3	34	-	-
5	27	-	-
4	21	20 - 50	Yes
2	20	12 - 38	Yes
1	16	8 - 28	Yes
0.5	12	-	-
0.25	10	-	-
0.125	9	-	-
0.063	5.9	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

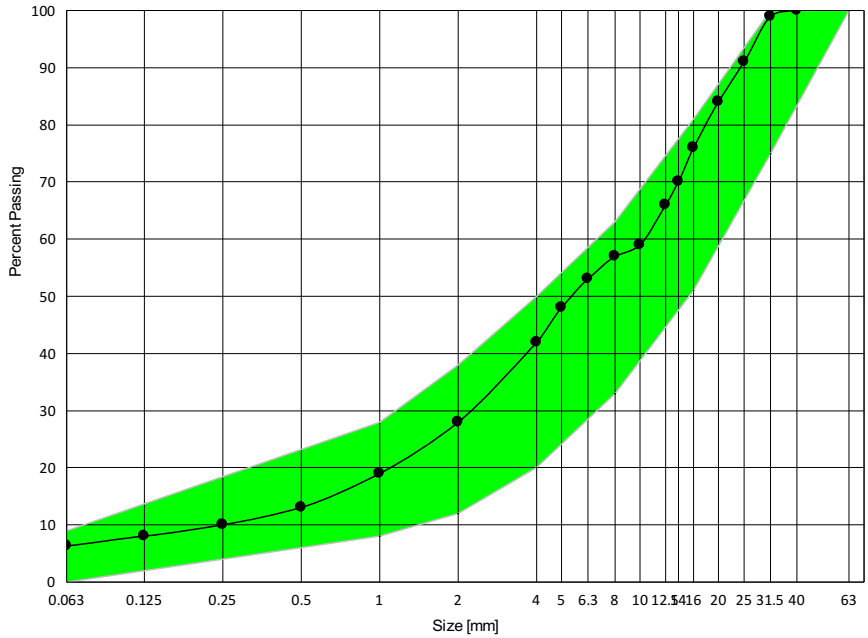
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UKAS TESTING
0812

Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Sub Base 0/32 Limestone SHW 803**
Material Code:	**200017**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**SHW Series 800 / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-73983
Sampled by	Luke Menhennet
Date Sampled	15/09/2022
Sample location	Stockpile PM
Moisture Content (%)	**2.7**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	15	7.0 to 30.0	yes
8/16	19	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	100 - 100	Yes
40	100	-	-
31.5	99	75 - 100	Yes
25	91	-	-
20	84	-	-
16	76	51 - 81	Yes
14	70	-	-
12.5	66	-	-
10	59	-	-
8	57	33 - 63	Yes
6.3	53	-	-
5	48	-	-
4	42	20 - 50	Yes
2	28	12 - 38	Yes
1	19	8 - 28	Yes
0.5	13	-	-
0.25	10	-	-
0.125	8	-	-
0.063	6.3	0 - 9.0	Yes

Signed :

Issue Date :19/05/2026

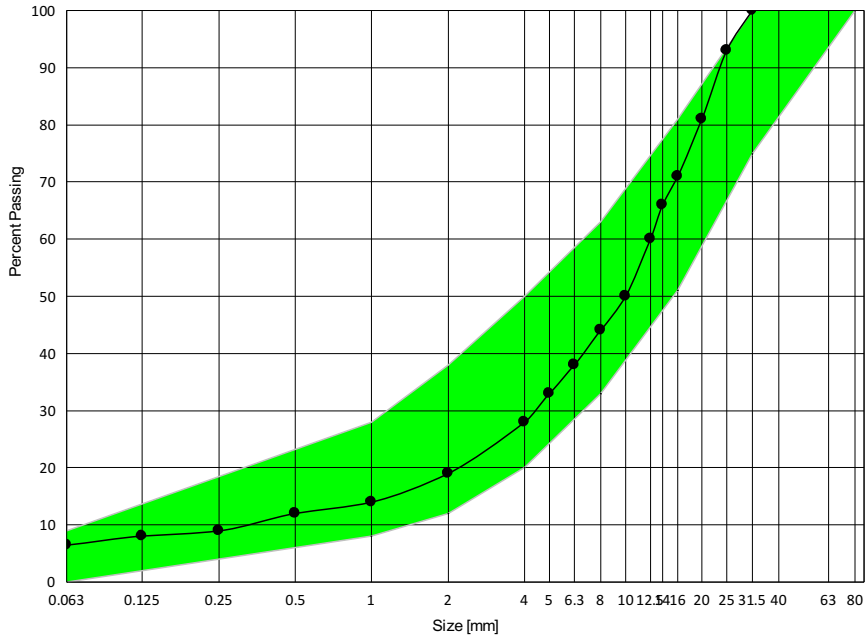
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UKAS TESTING
0812

Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0138192
Sampled by	
Date Sampled	16/09/2024
Sample location	Stockpile
Moisture Content (%)	**2.4**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	16	7.0 to 30.0	yes
8/16	27	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	100	75 - 100	Yes
25	93	-	-
20	81	-	-
16	71	51 - 81	Yes
14	66	-	-
12.5	60	-	-
10	50	-	-
8	44	33 - 63	Yes
6.3	38	-	-
5	33	-	-
4	28	20 - 50	Yes
2	19	12 - 38	Yes
1	14	8 - 28	Yes
0.5	12	-	-
0.25	9	-	-
0.125	8	-	-
0.063	6.4	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

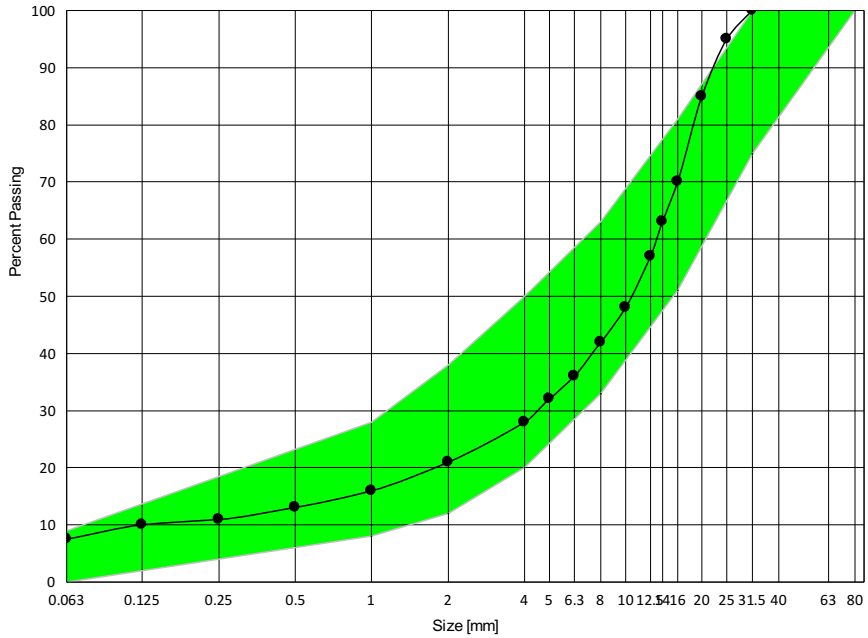
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UKAS TESTING
0812

Heidelberg Materials
Ridgewood House
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Particle Size Distribution Report

Product:	**Type 1 Limestone Sub-base**
Material Code:	**70000126**
Supplied by:	**Whatley (6063)**
Customer:	
Site:	
Ticket Number:	
Testing Laboratory	**Whatley**
Material type:	**HMGS / Limestone**
Job Type	**100/General**
Test Method	**Splitting wash sample - dry sieving**
(To BS EN 933-1 : 2020)	
Sampled to:	BSEN 932-1 : 1997
Prepared to:	BSEN 932-2 : 1997



Sample Information	
Sample number	AGG-0169216
Sampled by	Chris Keepen
Date Sampled	16/09/2025
Sample location	Stockpile
Moisture Content (%)	**3.8**

Additional Grading Requirements - Type 1 GSB table 8/5

Size fraction (d/D)	% passing	Specification	Complies (Spec)
4/8	14	7.0 to 30.0	yes
8/16	28	7.0 to 30.0	yes

Remarks

Results shown on this report only relate to the sample being tested and at no point did the laboratory deviate from the test method as stated above.

Sieve Size (mm)	Percentage Passing (%)	Spec limits (%)	Complies
63	100	-	-
40	100	-	-
31.5	100	75 - 100	Yes
25	95	-	-
20	85	-	-
16	70	51 - 81	Yes
14	63	-	-
12.5	57	-	-
10	48	-	-
8	42	33 - 63	Yes
6.3	36	-	-
5	32	-	-
4	28	20 - 50	Yes
2	21	12 - 38	Yes
1	16	8 - 28	Yes
0.5	13	-	-
0.25	11	-	-
0.125	10	-	-
0.063	7.5	0 - 9.0	Yes

Signed :

Issue Date :12/02/2026

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Appendix R2
JRL Silvertown

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TEST REPORT

K4 Soils Laboratory

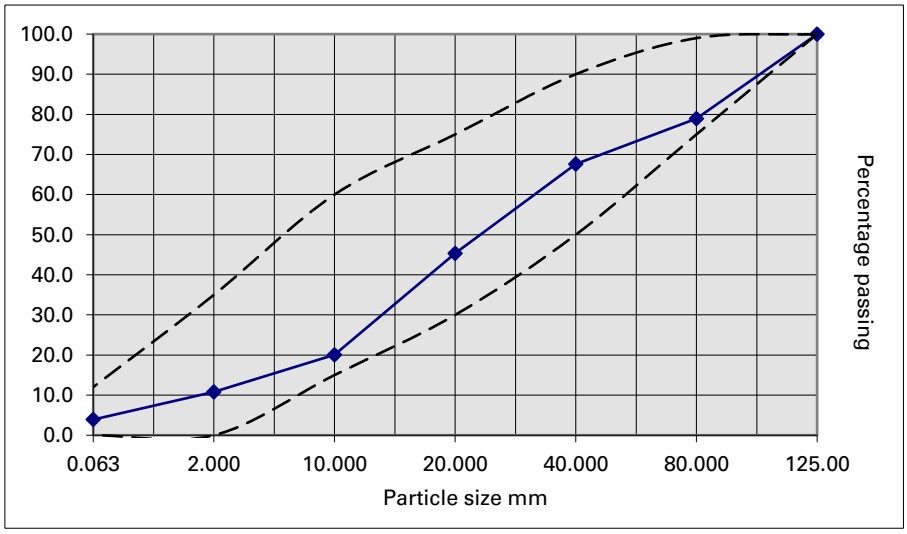
Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-32425 - 6F5/2609/01
Client Ref No:	6F5/2609/01 - TJ3744O03
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	26/09/2022
Date Received:	27/09/2022
Date Tested:	15/12/2022
Method of Sampling:	Sample taken by Terragen
Material Description:	Fmc and cobble sized crushed concrete
NMC (%):	6.3
Target Specification:	SHW Series 600: Table 6/1 and Table 6/5
	Class 6F5 - Selected Granular Material - (fine grading) - imported on to the site - Capping

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
125.0	100	100	100
80.0	79	75	99
40.0	68	50	90
20.0	45	30	75
10.0	20	15	60
2.0	11	0	35
0.063	3.9	0	12



Sample complies with specification limits:	**YES**

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

UKAS TESTING
2519

Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
05/01/2023

TEST REPORT

K4 Soils Laboratory

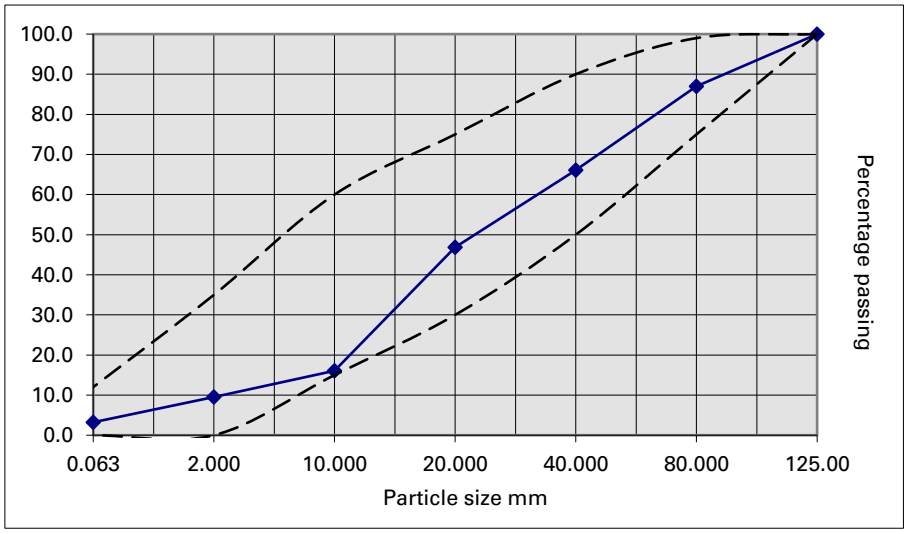
Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-32543 - 6F5/1910/01
Client Ref No:	6F5/1910/01 - TJ3744P02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	19/10/2022
Date Received:	19/10/2022
Date Tested:	22/12/2022
Method of Sampling:	Sample taken by Terragen
Material Description:	Fmc and cobble sized crushed concrete with occasional brick fragments and clayey sand fines
NMC (%):	7.5
Target Specification:	SHW Series 600: Table 6/1 and Table 6/5
	Class 6F5 - Selected Granular Material - (fine grading) - imported on to the site - Capping

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
125.0	100	100	100
80.0	87	75	99
40.0	66	50	90
20.0	47	30	75
10.0	16	15	60
2.0	9.5	0	35
0.063	3.2	0	12



Sample complies with specification limits:	**YES**

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

UKAS TESTING
2519

Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
24/01/2023

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU

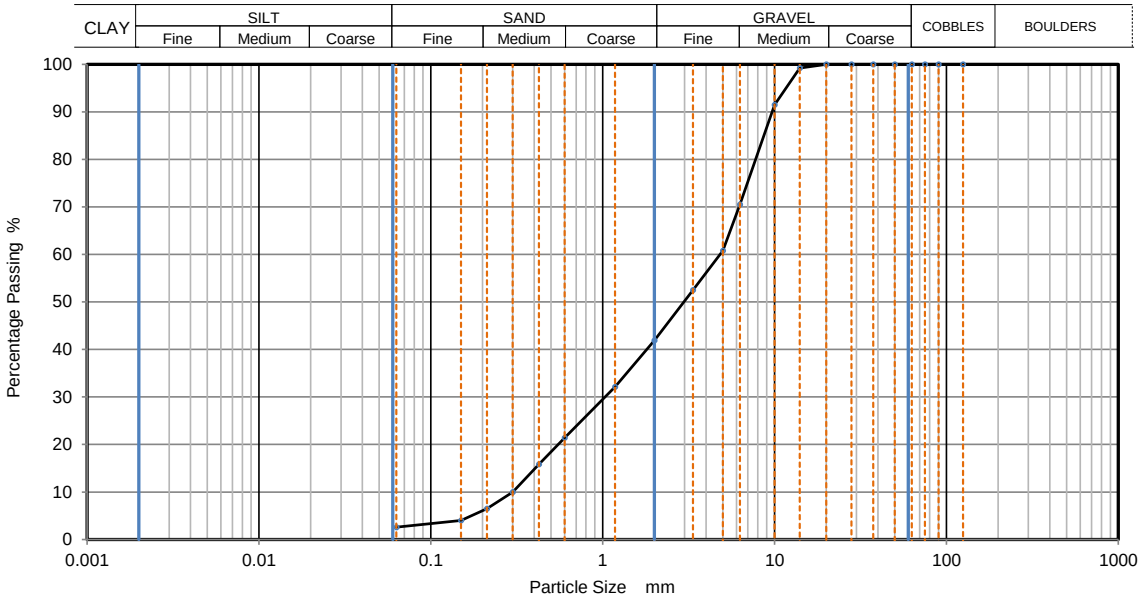
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

All samples connected with this report ,incl any on 'hold' will be stored and disposed off according to Company policy. A copy of this policy is available on request.

PARTICLE SIZE DISTRIBUTION

				Job Ref	32543
				Borehole/Pit No.	6N/1910/01
Site Name	Knights Road, Silvertown, London E16 2AT			Sample No.	-
Project No.	TJ3744P02	Client	Terragen	Depth Top	- m
Soil Description	Light greyish brown very sandy GRAVEL (gravel is fm and sub-angular)			Depth Base	- m
				Sample Type	B
				Samples received	19/10/2022
				Schedules received	19/10/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	20/10/2022
				Date tested	21/12/2023

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	92		
6.3	71		
5	61		
3.35	53		
2	42		
1.18	32		
0.6	21		
0.425	16		
0.3	10		
0.212	7		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	58.1
Sand	39.3
Fines <0.063mm	2.7

Grading Analysis		
D100	mm	
D60	mm	4.81
D30	mm	1.03
D10	mm	0.3
Uniformity Coefficient		16
Curvature Coefficient		0.74

Remarks

Preparation and testing in accordance with BS1377 unless noted below

NOTE: The report shall not be reproduced except in full without approval of the laboratory

K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 24/01/2023

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-32543 - 6N/1910/01
Client Ref No:	6N/1910/01 - TJ3744P02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	19/10/2022
Date Received:	19/10/2022
Date Tested:	21/12/2022
Method of Sampling:	Samples taken By Kalex
Material Description:	Light greyish brown very sandy GRAVEL (gravel is fm and sub-angular)
Target Specification:	DOT Specification for Highway Works Class 6N (SHW Series 600: Table 6/2)

Results:

Unrepresentative lumps were present:	**NO**

Does Sample complies with specification limits	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
75.0	100	100	100
0.063	2.7	0	15

UKAS TESTING 2519

Particle Size Distribution

BS 1377-2: 1990 9.2

Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
24/01/2023

TEST REPORT

K4 Soils Laboratory

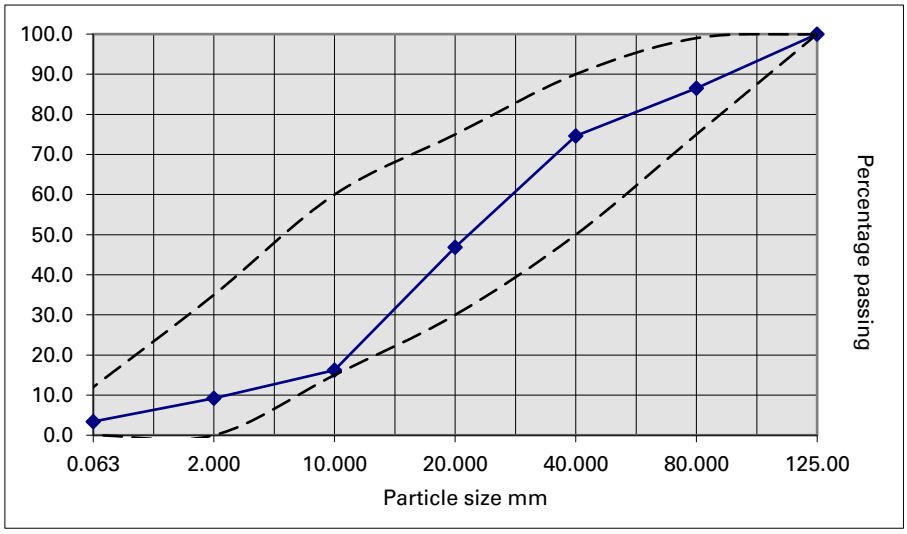
Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-32651 - 6F5/1111/01
Client Ref No:	6F5/1111/01 - TJ3744Q02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	11/11/2022
Date Received:	14/11/2022
Date Tested:	09/01/2023
Method of Sampling:	Sample taken by Kalex
Material Description:	Fmc and cobble sized crushed concrete with clayey sand fines
NMC (%):	8.4
Target Specification:	SHW Series 600: Table 6/1 and Table 6/5
	Class 6F5 - Selected Granular Material - (coarse grading)

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
125.0	100	100	100
80.0	86	75	99
40.0	75	50	90
20.0	47	30	75
10.0	16	15	60
2.0	9.2	0	35
0.063	3.4	0	12



Sample complies with specification limits:	**YES**

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

UKAS TESTING
2519

Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
31/01/2023

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

All samples connected with this report ,incl any on 'hold' will be stored and disposed off according to Company policy. A copy of this policy is available on request.

TEST REPORT

K4 Soils Laboratory

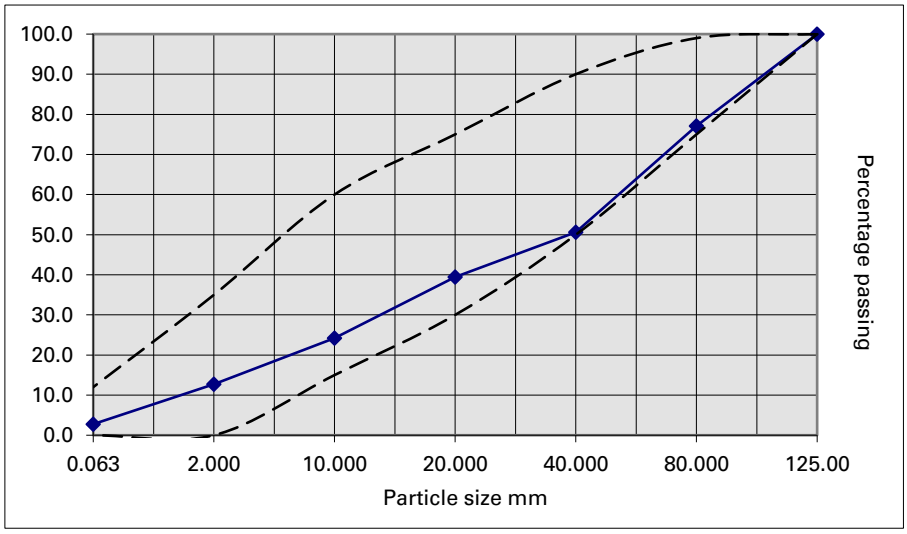
Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-32811 - 6F5/2212/01
Client Ref No:	6F5/2212/01 - TJ3744R02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	22/12/2022
Date Received:	23/12/2022
Date Tested:	25/01/2023
Method of Sampling:	Sample taken by Kalex
Material Description:	Fmc and cobble sized crushed concrete with occasional brick fragments and clayey sand fines
NMC (%):	9.8
Target Specification:	SHW Series 600: Table 6/1 and Table 6/5
	Class 6F5 - Selected Granular Material - (coarse grading)

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
125.0	100	100	100
80.0	77	75	99
40.0	51	50	90
20.0	39	30	75
10.0	24	15	60
2.0	13	0	35
0.063	2.8	0	12



Sample complies with specification limits:	**YES**

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UKAS TESTING
2519

Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

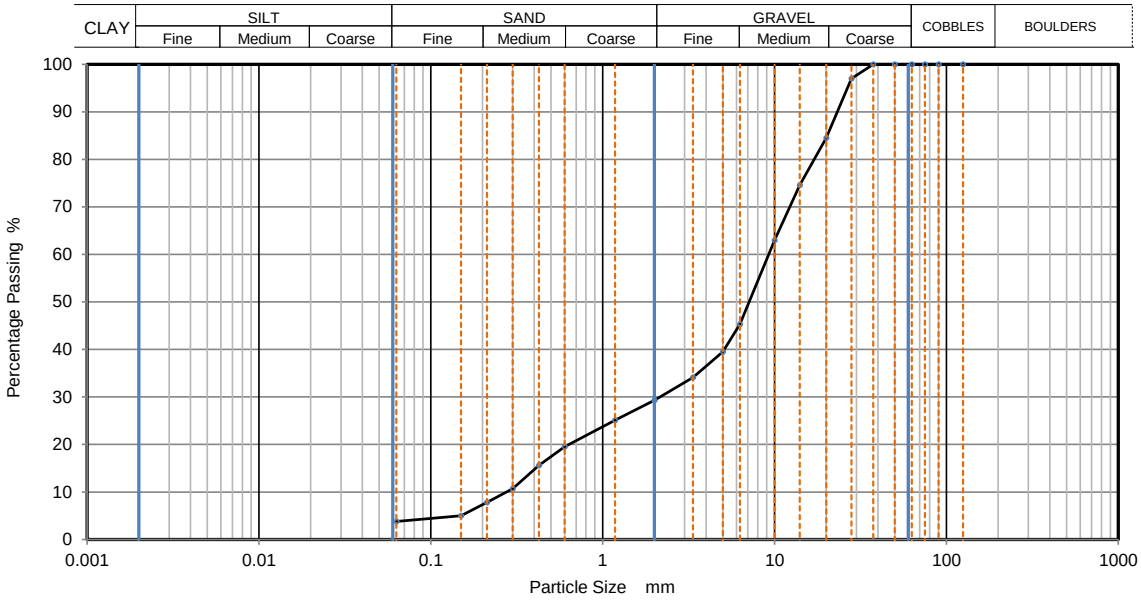
Checked and Approved
Initials: J.P
01/02/2023

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)
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PARTICLE SIZE DISTRIBUTION

				Job Ref	32811
				Borehole/Pit No.	Type 6N
Site Name	Knights Road, Silvertown, London E16 2AT			Sample No.	-
Project No.	TJ3744R02	Client	Terragen	Depth Top	- m
Soil Description	Greyish brown slightly clayey very sandy fmc sub-angular to rounded GRAVEL with fmc concrete and brick fragments			Depth Base	- m
				Sample Type	B
				Samples received	23/12/2022
				Schedules received	23/12/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	03/01/2023
				Date tested	25/01/2023

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	85		
14	75		
10	63		
6.3	45		
5	40		
3.35	34		
2	29		
1.18	25		
0.6	20		
0.425	16		
0.3	11		
0.212	8		
0.15	5		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	70.7
Sand	25.4
Fines <0.063mm	3.8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	9.25
D_{30}	mm	2.16
D_{10}	mm	0.277
Uniformity Coefficient		33
Curvature Coefficient		1.8

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU
Email: james@k4soils.com
Tel: 01923 711288

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Checked and Approved

Initials: J.P

Date: 01/02/2023

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-32811 - 6N/2212/01
Client Ref No:	6N/2212/01 - TJ3744R02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	22/12/2022
Date Received:	23/12/2022
Date Tested:	25/01/2023
Method of Sampling:	Samples taken By Kalex
Material Description:	Greyish brown slightly clayey very sandy fmc sub-angular to rounded GRAVEL with fmc concrete and brick fragments
Target Specification:	DOT Specification for Highway Works Class 6N (SHW Series 600: Table 6/2)

Results:

Unrepresentative lumps were present:	**NO**

Does Sample complies with specification limits	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
75.0	100	100	100
0.063	3.8	0	15

UKAS TESTING 2519

Particle Size Distribution

BS 1377-2: 1990 9.2

Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
01/02/2023

TEST REPORT

K4 Soils Laboratory

Sample Details

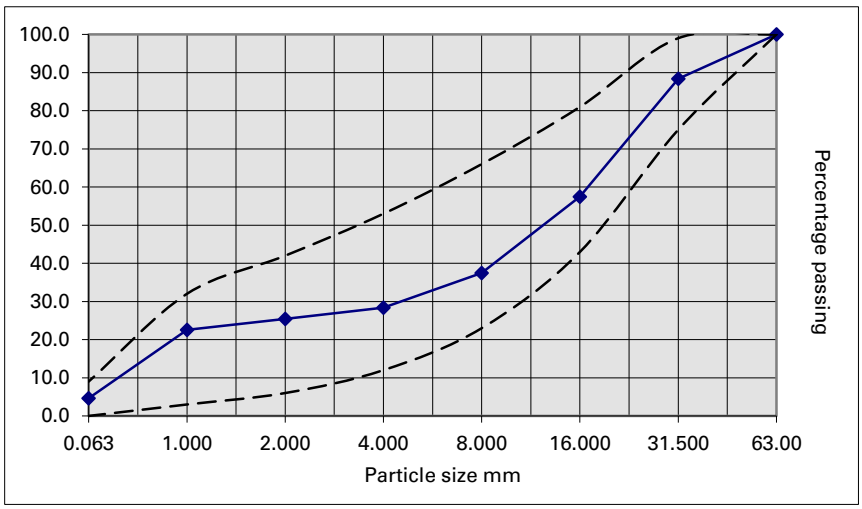
Certificate of sampling received:	Yes
Laboratory Ref No:	K4-32811 - T1/2212/01
Client Ref No:	T1/2212/01 - TJ3744R02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	22/12/2022
Date Received:	23/12/2022
Date Tested:	25/01/2023
Method of Sampling:	Sample taken by Kalex
Material Description:	Fmc crushed concrete with occasional brick fragments and clayey sand fines
NMC (%):	12
Aggregate Type and Nominal Size:	Type 1 Crushed concrete
Target Specification:	SHW Series 800: clause 803 Table 8/6a overall grading range
	Type 1 Unbound Mixture

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
63.0	100	100	100
31.5	88	75	99
16.0	57	43	81
8.0	37	23	66
4.0	28	12	53
2.0	25	6	42
1.0	23	3	32
0.063	4.6	0	9

Percent in Fraction Size			
Fraction Size	Percentage	Specification Limits	
8/16	20	7	30
4/8	9	7	30



Sample complies with specification limits:	**YES**

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UKAS TESTING
2519

Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
01/02/2023

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

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TEST REPORT

K4 Soils Laboratory

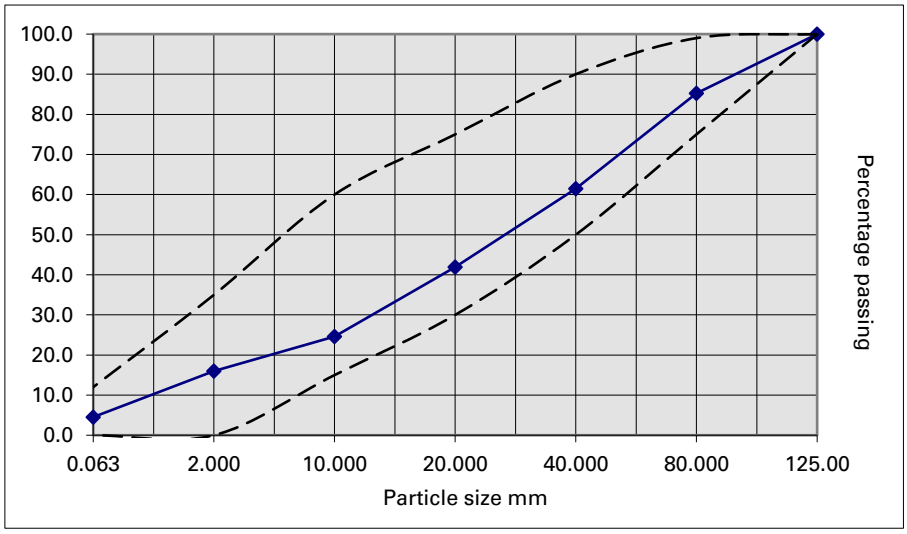
Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-32918 - 6F5/2601/01
Client Ref No:	6F5/2601/01 - TJ3744S02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	26/01/2023
Date Received:	26/01/2023
Date Tested:	03/02/2023
Method of Sampling:	Sample taken by Kalex
Material Description:	Fmc and cobble sized crushed concrete with occasional brick fragments and clayey sand fines
NMC (%):	9.9
Target Specification:	SHW Series 600: Table 6/1 and Table 6/5
	Class 6F5 - Selected Granular Material - (coarse grading)

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
125.0	100	100	100
80.0	85	75	99
40.0	61	50	90
20.0	42	30	75
10.0	25	15	60
2.0	16	0	35
0.063	4.5	0	12



Sample complies with specification limits:	**YES**

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UKAS TESTING
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Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
09/02/2023

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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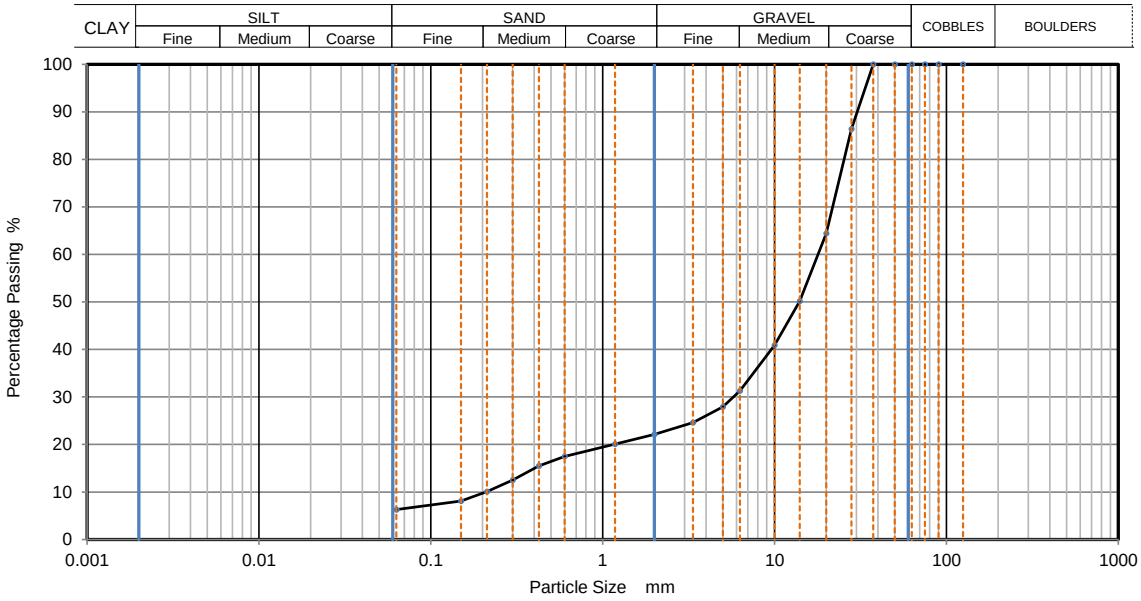
PARTICLE SIZE DISTRIBUTION

Site Name	Knights Road, Silvertown, London E16 2AT			Sample No.	-
Project No.	TJ3744S02	Client	Terragen	Depth Top	- m
Soil Description	Fmc crushed concrete with occasional brick and tarmac fragments and clayey sand fines			Depth Base	- m
				Sample Type	B
				Samples received	26/01/2023
				Schedules received	26/01/2023
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	27/01/2023
				Date tested	03/02/2023

Job Ref: 32918

Borehole/Pit No.: 6N/2601/01

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	86		
20	64		
14	50		
10	41		
6.3	31		
5	28		
3.35	25		
2	22		
1.18	20		
0.6	18		
0.425	16		
0.3	13		
0.212	10		
0.15	8		
0.063	6		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	77.9
Sand	15.8
Fines <0.063mm	6.3

Grading Analysis		
D100	mm	
D60	mm	17.9
D30	mm	5.76
D10	mm	0.209
Uniformity Coefficient		85
Curvature Coefficient		8.9

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

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Tel: 01923 711288

Checked and Approved

Initials: J.P

Date: 09/02/2023

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-32918 - 6N/2601/01
Client Ref No:	6N/2601/01 - TJ3744S02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	26/01/2023
Date Received:	26/01/2023
Date Tested:	03/02/2023
Method of Sampling:	Samples taken By Kalex
Material Description:	Fmc crushed concrete with occasional brick and tarmac fragments and clayey sand fines
Target Specification:	DOT Specification for Highway Works Class 6N (SHW Series 600: Table 6/2)

Results:

Unrepresentative lumps were present:	**NO**

Does Sample complies with specification limits	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
75.0	100	100	100
0.063	6.3	0	15

UKAS TESTING 2519

Particle Size Distribution

BS 1377-2: 1990 9.2

Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
09/02/2023

TEST REPORT

K4 Soils Laboratory

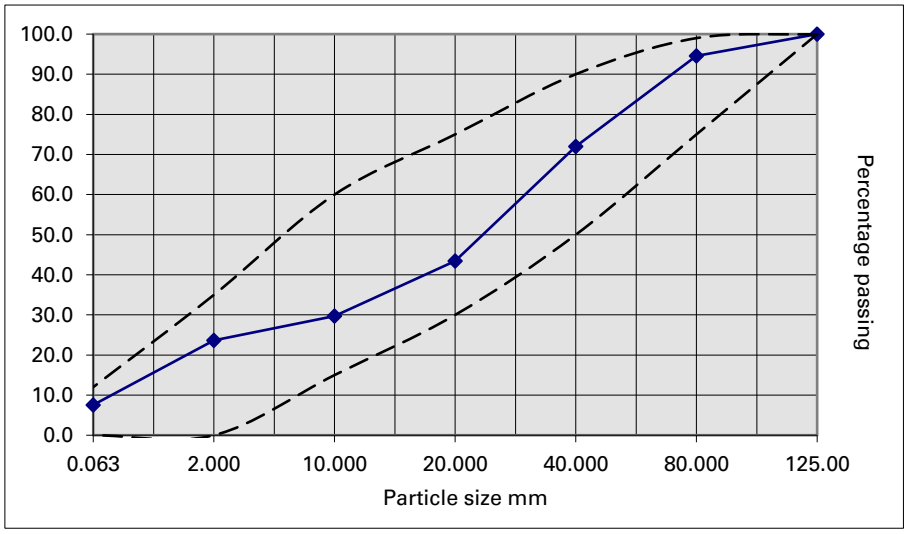
Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-33056 - 6F5/2302/01
Client Ref No:	6F5/2302/01 - TJ3744T03
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	23/02/2023
Date Received:	24/02/2023
Date Tested:	27/03/2023
Method of Sampling:	Sample taken by Kalex
Material Description:	Greyish brown fmc and cobble sized crushed concrete with occasional brick fragments and clayey sand fines
NMC (%):	7.7
Target Specification:	SHW Series 600: Table 6/1 and Table 6/5
	Class 6F5 - Selected Granular Material - (coarse grading)

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
125.0	100	100	100
80.0	95	75	99
40.0	72	50	90
20.0	43	30	75
10.0	30	15	60
2.0	24	0	35
0.063	7.5	0	12



Sample complies with specification limits:	**YES**

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UKAS TESTING
2519

Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
19/04/2023

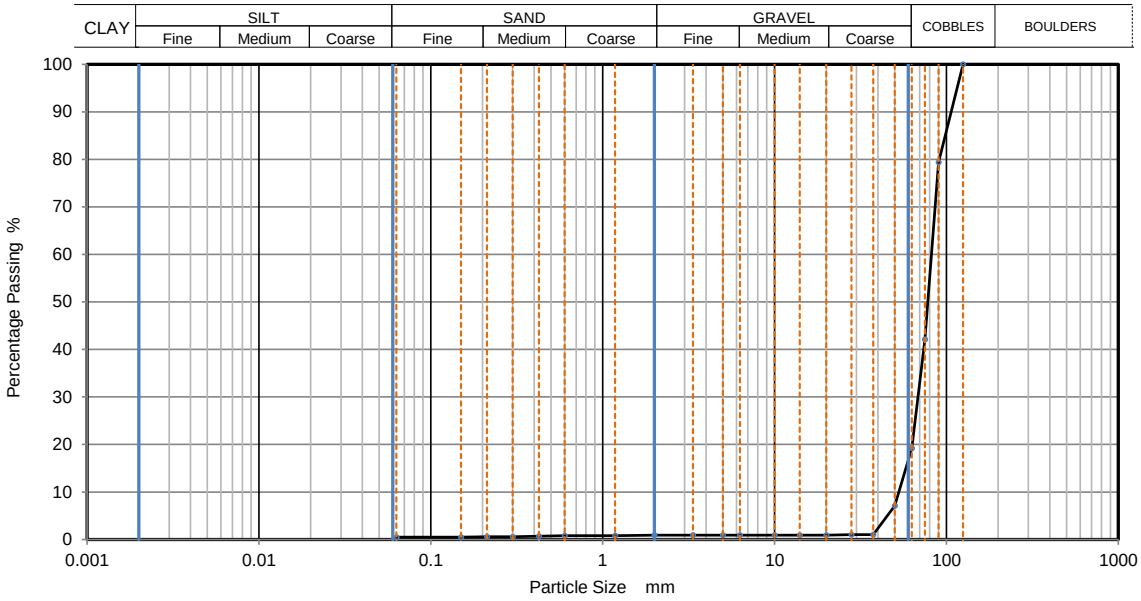
Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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PARTICLE SIZE DISTRIBUTION

Site Name	Knights Road, Silvertown, London E16 2AT			Job Ref	34094
				Borehole/Pit No.	6C/2009/01
Project No.	TJ3987A02	Client	Terragen	Sample No.	-
Soil Description	Fmc and cobble sized crushed concrete with brick fragments and grey sandy fines			Depth Top	- m
				Depth Base	- m
				Sample Type	B
				Samples received	20/09/2023
				Schedules received	20/09/2023
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	21/09/2023
				Date tested	06/11/2023

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	79		
75	42		
63	19		
50	7		
37.5	1.0		
28	1.0		
20	0.9		
14	0.9		
10	0.9		
6.3	0.9		
5	0.9		
3.35	0.9		
2	0.9		
1.18	0.8		
0.6	0.8		
0.425	0.7		
0.3	0.6		
0.212	0.6		
0.15	0.5		
0.063	0.5		

Sample Proportions	% dry mass
Very coarse	80.80
Gravel	18.32
Sand	0.39
Fines <0.063mm	0.48

Grading Analysis		
D_{100}	mm	125
D_{60}	mm	81.9
D_{30}	mm	68.4
D_{10}	mm	52.8
Uniformity Coefficient		1.5
Curvature Coefficient		1.1

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 20/09/2023

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K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

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Checked and Approved

Initials: J.P

Date: 22/11/2023

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-34094 - 6C/2009/01
Client Ref No:	6C/2009/01 - TJ3744A02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	20/09/2023
Date Received:	20/09/2023
Date Tested:	06/11/2023
Method of Sampling:	Samples taken By Kalex
Material Description:	Fmc and cobble sized crushed concrete with brick fragments and grey sandy fines
NMC (%)	6.4
Target Specification:	SHW Series 600: Table 6/1 and Table 6/2 Class 6C - Selected uniformly graded granular material - Starter Layer

Results:

Unrepresentative lumps were present :	**NO**

Sample complies with specification limits:	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
125.0	100	100	100
37.5	1.0	0	100
6.30	0.90	0	100
3.35	0.90	0	35
2.00	0.90	0	10
0.60	0.80	0	2

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2519

Particle Size Distribution

BS 1377-2: 1990 9.2

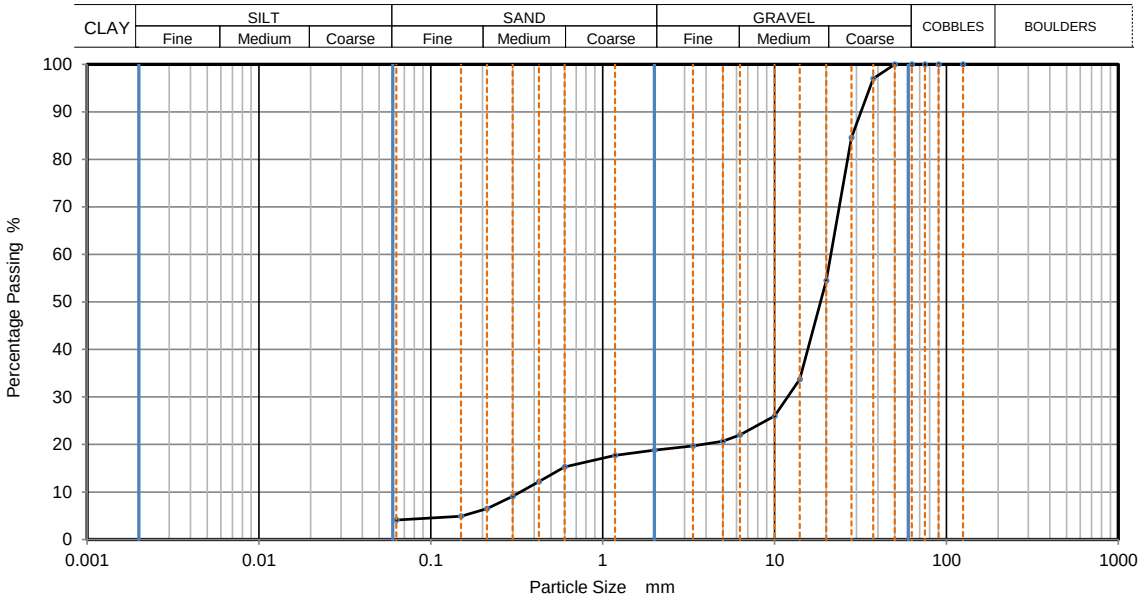
Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
22/01/2023

PARTICLE SIZE DISTRIBUTION

Site Name	Knights Road, Silvertown, London E16 2AT			Job Ref	34094
				Borehole/Pit No.	6N/2009/01
Project No.	TJ3987A02	Client	Terragen	Sample No.	-
				Depth Top	- m
Soil Description	Grey fmc crushed concrete with brick and tile fragments and brown slightly clayey sand fines			Depth Base	- m
				Sample Type	B
				Samples received	20/09/2023
				Schedules received	20/09/2023
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	21/09/2023
				Date tested	06/11/2023

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	85		
20	55		
14	34		
10	26		
6.3	22		
5	21		
3.35	20		
2	19		
1.18	18		
0.6	15		
0.425	12		
0.3	9		
0.212	7		
0.15	5		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	81.22
Sand	14.72
Fines <0.063mm	4.06

Grading Analysis		
D_{100}	mm	
D_{60}	mm	21.3
D_{30}	mm	11.9
D_{10}	mm	0.331
Uniformity Coefficient		64
Curvature Coefficient		20

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 20/09/2023

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K4 Soils Laboratory

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Tel: 01923 711288

Checked and Approved

Initials: J.P

Date: 22/11/2023

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-34094 - 6N/2009/01
Client Ref No:	6N/2009/01 - TJ3744A02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	20/09/2023
Date Received:	20/09/2023
Date Tested:	06/11/2023
Method of Sampling:	Samples taken By Kalex
Material Description:	Grey fmc crushed concrete with brick and tile fragments and brown slightly clayey sand fines
Target Specification:	DOT Specification for Highway Works Class 6N (SHW Series 600: Table 6/2)

Results:

Unrepresentative lumps were present:	**NO**

Does Sample complies with specification limits	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
75.0	100	100	100
0.063	4.1	0	15

UKAS TESTING
2519

Particle Size Distribution

BS 1377-2: 1990 9.2

Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
22/11/2023

TEST REPORT

K4 Soils Laboratory

Sample Details

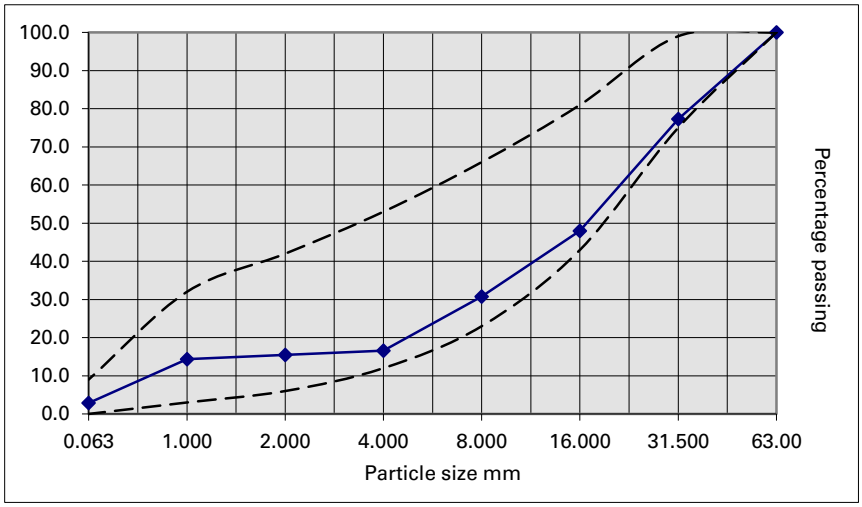
Certificate of sampling received:	Yes
Laboratory Ref No:	K4-34094 - T1/2009/01
Client Ref No:	T1/2009/01 - TJ3987A02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	20/09/2023
Date Received:	20/09/2023
Date Tested:	17/11/2023
Method of Sampling:	Sample taken by Kalex
Material Description:	Fmc crushed concrete with brick and tile fragments and brown slightly clayey sand fines
NMC (%):	7.7
Aggregate Type and Nominal Size:	Type 1 Crushed concrete
Target Specification:	SHW Series 800: clause 803 Table 8/6a overall grading range
	Type 1 Unbound Mixture

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
63.0	100	100	100
31.5	77	75	99
16.0	48	43	81
8.0	31	23	66
4.0	17	12	53
2.0	16	6	42
1.0	14	3	32
0.063	2.9	0	9

Percent in Fraction Size			
Fraction Size	Percentage	Specification Limits	
8/16	17	7	30
4/8	14	7	30



Sample complies with specification limits:	**YES**

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

UKAS TESTING
2519

Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
22/11/2023

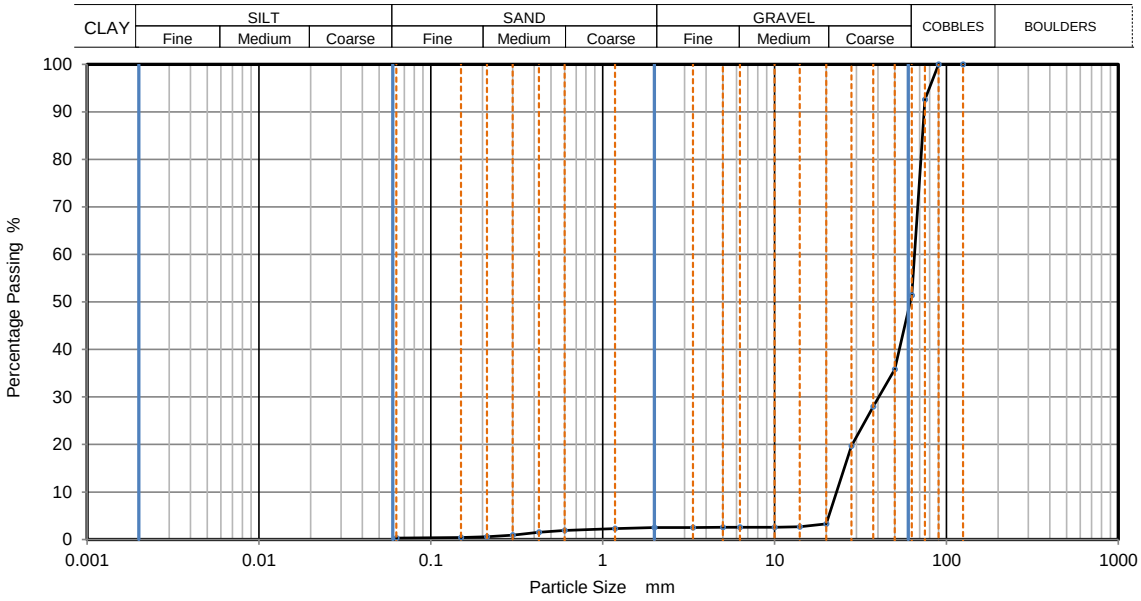
Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

All samples connected with this report ,incl any on 'hold' will be stored and disposed off according to Company policy. A copy of this policy is available on request.

PARTICLE SIZE DISTRIBUTION

Site Name	Knights Road, Silvertown, London E16 2AT			Job Ref	34306
				Borehole/Pit No.	6C/3110/01
Project No.	TJ3987B02	Client	Terragen	Sample No.	-
Soil Description	Greyish brown fmc and cobble sized crushed concrete with occasional tarmac fragments, fmc sub-rounded gravel and clayey fines			Depth Top	- m
				Depth Base	- m
				Sample Type	B
				Samples received	31/10/2023
				Schedules received	01/11/2023
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	01/11/2023
				Date tested	08/12/2023

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	93		
63	51		
50	36		
37.5	28		
28	20		
20	3.3		
14	2.7		
10	2.6		
6.3	2.6		
5	2.6		
3.35	2.5		
2	2.5		
1.18	2.3		
0.6	1.9		
0.425	1.5		
0.3	0.9		
0.212	0.6		
0.15	0.4		
0.063	0.3		

Sample Proportions	% dry mass
Very coarse	48.60
Gravel	48.90
Sand	2.16
Fines <0.063mm	0.30

Grading Analysis		
D100	mm	
D60	mm	65.3
D30	mm	40.4
D10	mm	23
Uniformity Coefficient		2.8
Curvature Coefficient		1.1

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 31/10/2023

NOTE: The report shall not be reproduced except in full without approval of the laboratory

K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 09/01/2024

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-34306 - 6C/3110/01
Client Ref No:	6C/3110/01 - TJ3744B02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	31/10/2023
Date Received:	01/11/2023
Date Tested:	08/12/2023
Method of Sampling:	Samples taken By Kalex
Material Description:	Greyish brown fmc and cobble sized crushed concrete with occasional tarmac fragments, fmc sub-rounded gravel and clayey fines
NMC (%)	4.0
Target Specification:	SHW Series 600: Table 6/1 and Table 6/2 Class 6C - Selected uniformly graded granular material - Starter Layer

Results:

Unrepresentative lumps were present :	**NO**

Sample complies with specification limits:	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
125.0	100	100	100
37.5	28	0	100
6.30	2.6	0	100
3.35	2.5	0	35
2.00	2.5	0	10
0.60	1.9	0	2

UKAS TESTING
2519

Particle Size Distribution

BS 1377-2: 1990 9.2

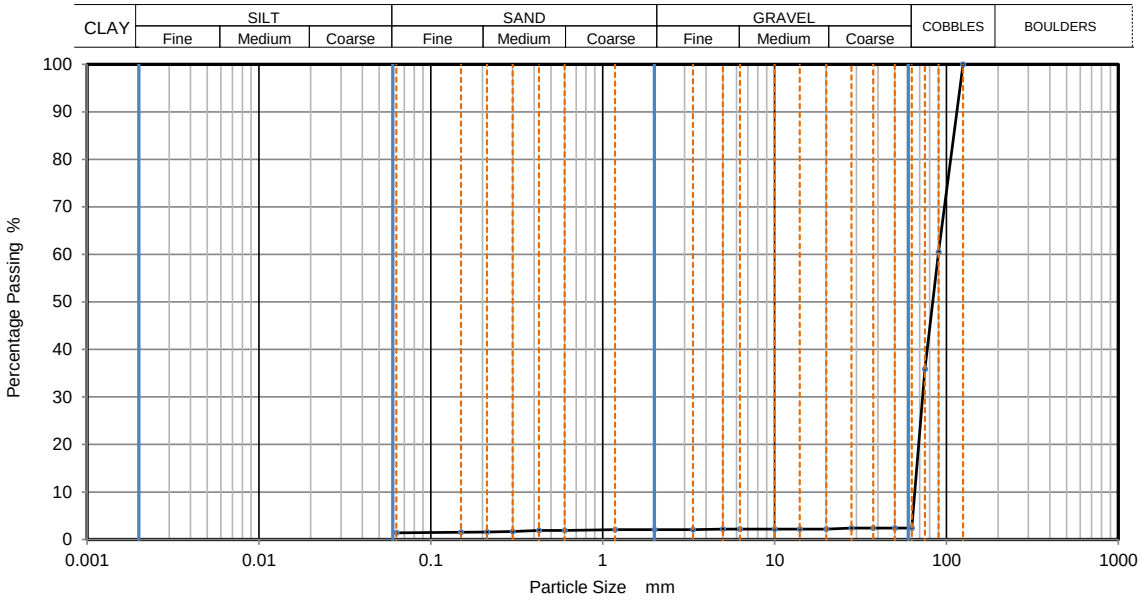
Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
09/01/2024

PARTICLE SIZE DISTRIBUTION

				Job Ref	34522
				Borehole/Pit No.	6C/3011/01
Site Name	Knights Road, Silvertown, London E16 2AT			Sample No.	-
Project No.	TJ3987C02	Client	Terragen	Depth Top	- m
Soil Description	Grey cobble size brick and concrete fragments with sandy fines			Depth Base	- m
				Sample Type	B
				Samples received	01/12/2023
				Schedules received	01/12/2023
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	04/12/2023
				Date tested	30/01/2024

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	61		
75	36		
63	2		
50	2		
37.5	2		
28	2		
20	2		
14	2		
10	2		
6.3	2		
5	2		
3.35	2		
2	2		
1.18	2		
0.6	2		
0.425	2		
0.3	2		
0.212	2		
0.15	2		
0.063	1		

Sample Proportions	% dry mass
Very coarse	97.60
Gravel	0.26
Sand	0.71
Fines <0.063mm	1.40

Grading Analysis		
D_{100}	mm	125
D_{60}	mm	89.6
D_{30}	mm	72.7
D_{10}	mm	65.5
Uniformity Coefficient		1.4
Curvature Coefficient		0.9

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 30/11/2023

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K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

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Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 05/03/2024

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-34522 - 6C/3011/01
Client Ref No:	6C/3011/01 - TJ3744C02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	30/11/2023
Date Received:	01/12/2023
Date Tested:	30/01/2024
Method of Sampling:	Samples taken By Kalex
Material Description:	Grey cobble size brick and concrete fragments with sandy fines
NMC (%)	7.2
Target Specification:	SHW Series 600: Table 6/1 and Table 6/2 Class 6C - Selected uniformly graded granular material - Starter Layer

Results:

Unrepresentative lumps were present :	**NO**

Sample complies with specification limits:	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
125.0	100	100	100
37.5	2.4	0	100
6.30	2.2	0	100
3.35	2.1	0	35
2.00	2.1	0	10
0.60	1.9	0	2

UKAS TESTING
2519

Particle Size Distribution

BS 1377-2: 1990 9.2

Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
05/03/2024

TEST REPORT

K4 Soils Laboratory

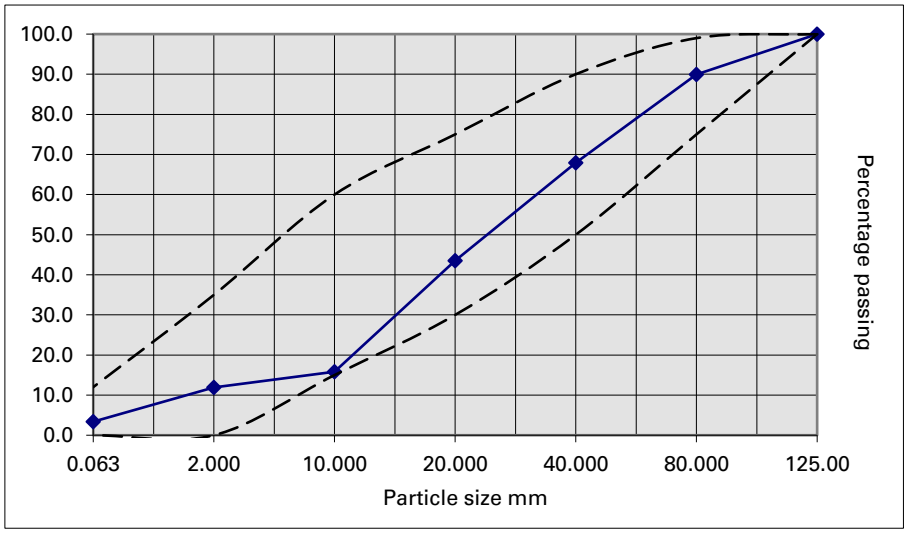
Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-34522 - 6F5/3011/01
Client Ref No:	6F5/3011/01 - TJ3987C02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	30/11/2023
Date Received:	01/12/2023
Date Tested:	01/02/2024
Method of Sampling:	Sample taken by Kalex
Material Description:	Greyish brown clayey sandy GRAVEL with fmc and cobble size concrete and brick fragments and fmc tarmac fragments (gravel is fmc and sub-rounded)
NMC (%):	11
Target Specification:	SHW Series 600: Table 6/1 and Table 6/5 Class 6F5 - Selected Granular Material - (coarse grading)

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
125.0	100	100	100
80.0	90	75	99
40.0	68	50	90
20.0	44	30	75
10.0	16	15	60
2.0	12	0	35
0.063	3.4	0	12



Sample complies with specification limits:	**YES**

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

UKAS TESTING
2519

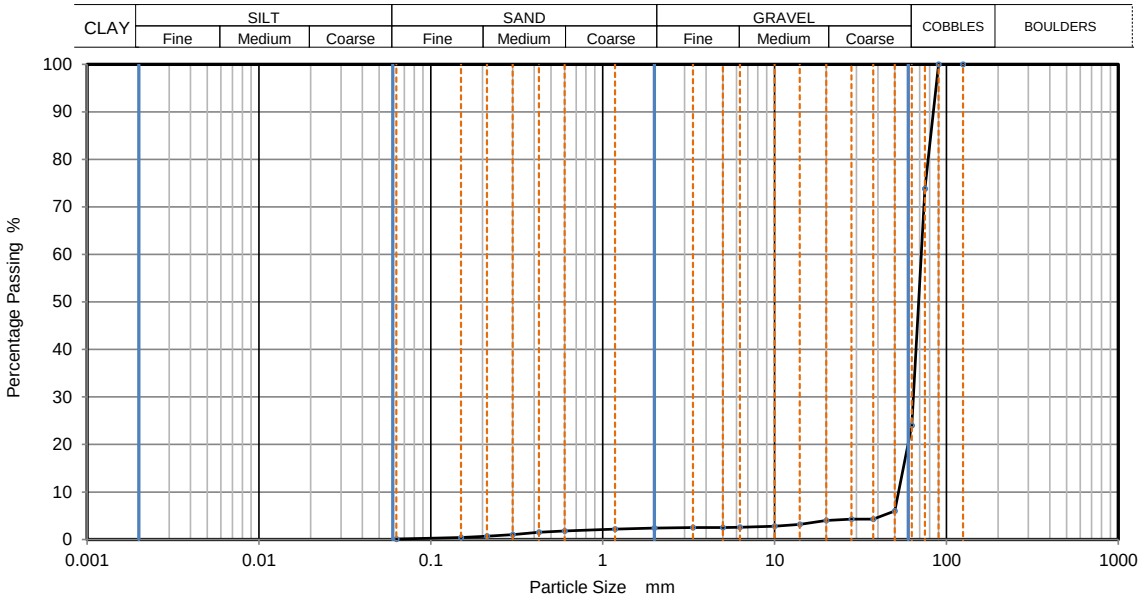
Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
05/03/2024

PARTICLE SIZE DISTRIBUTION

Site Name	Knights Road, Silvertown, London E16 2AT			Job Ref	34608
				Borehole/Pit No.	6C/1912/01
Project No.	TJ3987D02	Client	Terragen	Sample No.	-
Soil Description	Grey coarse and cobble size crushed concrete with occasional brick fragments and sandy silty clay fines			Depth Top	- m
				Depth Base	- m
				Sample Type	B
				Samples received	19/12/2023
				Schedules received	02/01/2024
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	03/01/2024
				Date tested	27/02/2024

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	74		
63	24		
50	6		
37.5	4.3		
28	4.3		
20	4.0		
14	3.2		
10	2.8		
6.3	2.6		
5	2.5		
3.35	2.5		
2	2.4		
1.18	2.2		
0.6	1.8		
0.425	2		
0.3	1		
0.212	1		
0.15	0		
0.063	0		

Sample Proportions	% dry mass
Very coarse	76.0
Gravel	21.6
Sand	2.3
Fines <0.063mm	0.1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	71.5
D_{30}	mm	64.3
D_{10}	mm	52.6
Uniformity Coefficient		1.4
Curvature Coefficient		1.1

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 19/12/2023

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UKAS TESTING
2519

K4 Soils Laboratory

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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Checked and Approved

Initials: J.P

Date: 20/03/2024

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-34608 - 6C/1912/01
Client Ref No:	6C/1912/01 - TJ3744D02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	19/12/2023
Date Received:	19/12/2023
Date Tested:	27/02/2024
Method of Sampling:	Samples taken By Kalex
Material Description:	Grey coarse and cobble size crushed concrete with occasional brick fragments and sandy silty clay fines
NMC (%)	6.4
Target Specification:	SHW Series 600: Table 6/1 and Table 6/2 Class 6C - Selected uniformly graded granular material - Starter Layer

Results:

Unrepresentative lumps were present :	**NO**

Sample complies with specification limits:	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
125.0	100	100	100
37.5	4.3	0	100
6.30	2.6	0	100
3.35	2.5	0	35
2.00	2.4	0	10
0.60	1.8	0	2

UKAS TESTING
2519

Particle Size Distribution

BS 1377-2: 1990 9.2

Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
20/03/2024

TEST REPORT

K4 Soils Laboratory

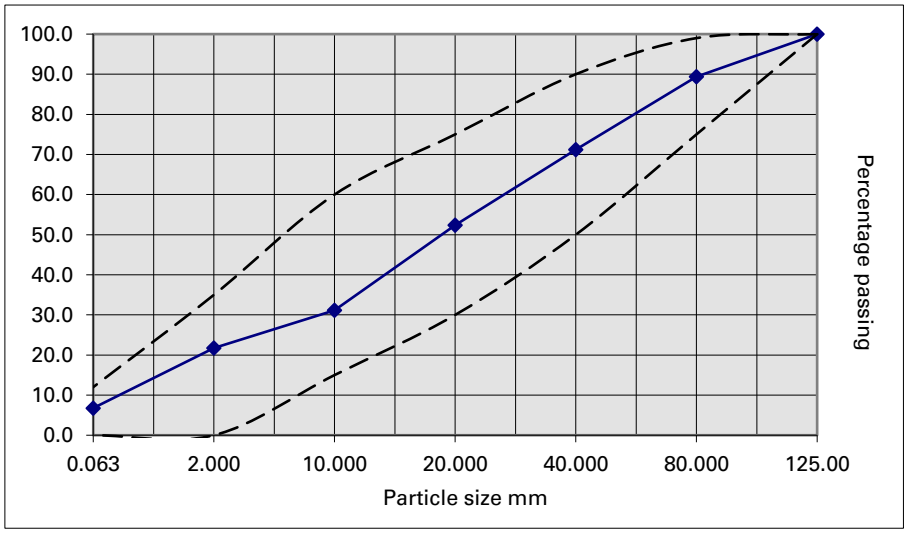
Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	34608 - 6F5/1912/01
Client Ref No:	6F5/1912/01 - TJ3987D02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	19/12/2023
Date Received:	19/12/2023
Date Tested:	28/02/2024
Method of Sampling:	Sample taken by Kalex
Material Description:	Greyish brown fmc and cobble size crushed concrete with brick and tarmac fragments, sub-rounded gravel and clayey sand fines
NMC (%):	10
Target Specification:	SHW Series 600: Table 6/1 and Table 6/5
	Class 6F5 - Selected Granular Material - (coarse grading)

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
125.0	100	100	100
80.0	89	75	99
40.0	71	50	90
20.0	52	30	75
10.0	31	15	60
2.0	22	0	35
0.063	6.8	0	12



Sample complies with specification limits:	**YES**

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

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Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
20/03/2024

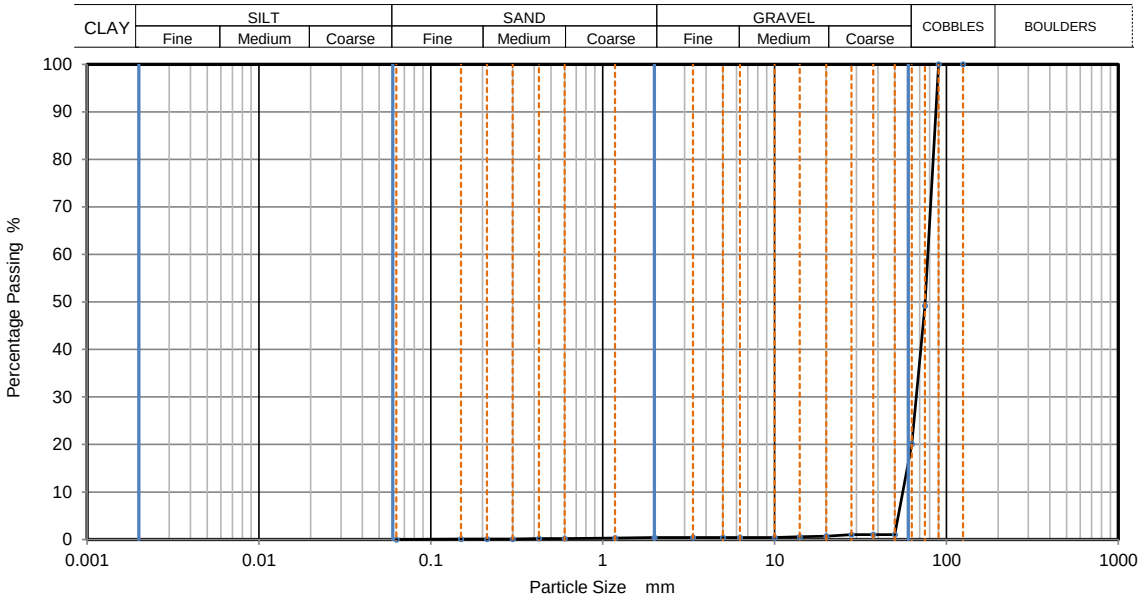
Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

All samples connected with this report ,incl any on 'hold' will be stored and disposed off according to Company policy. A copy of this policy is available on request.

PARTICLE SIZE DISTRIBUTION

Site Name	Knights Road, Silvertown, London E16 2AT			Job Ref	34757
				Borehole/Pit No.	6C/2301/01
Project No.	TJ3987E02	Client	Terragen	Sample No.	-
Soil Description	Grey cobble size crushed concrete with brick fragments			Depth Top	- m
				Depth Base	- m
				Sample Type	B
				Samples received	23/01/2024
				Schedules received	23/01/2024
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	24/01/2024
				Date tested	25/03/2024

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	49		
63	20		
50	1.0		
37.5	1.0		
28	1.0		
20	0.7		
14	0.6		
10	0.4		
6.3	0.4		
5	0.4		
3.35	0.4		
2	0.4		
1.18	0.3		
0.6	0.2		
0.425	0.2		
0.3	0.1		
0.212	0.1		
0.15	0.1		
0.063	0.0		

Sample Proportions	% dry mass
Very coarse	79.90
Gravel	19.71
Sand	0.32
Fines <0.063mm	0.03

Grading Analysis		
D_{100}	mm	
D_{60}	mm	78
D_{30}	mm	66.9
D_{10}	mm	55.7
Uniformity Coefficient		1.4
Curvature Coefficient		1

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 23/01/2024

NOTE: The report shall not be reproduced except in full without approval of the laboratory

K4 Soils Laboratory

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Checked and Approved

Initials: J.P

Date: 25/04/2024

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-34757 - 6C/2301/01
Client Ref No:	6C/2301/01 - TJ3987E02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	23/01/2024
Date Received:	23/01/2024
Date Tested:	25/03/2024
Method of Sampling:	Samples taken By Kalex
Material Description:	Grey cobble size crushed concrete with brick fragments
NMC (%)	8.8
Target Specification:	SHW Series 600: Table 6/1 and Table 6/2 Class 6C - Selected uniformly graded granular material - Starter Layer

Results:

Unrepresentative lumps were present :	**NO**

Sample complies with specification limits:	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
125.0	100	100	100
37.5	1.0	0	100
6.30	0.4	0	100
3.35	0.4	0	35
2.00	0.4	0	10
0.60	0.2	0	2

UKAS TESTING
2519

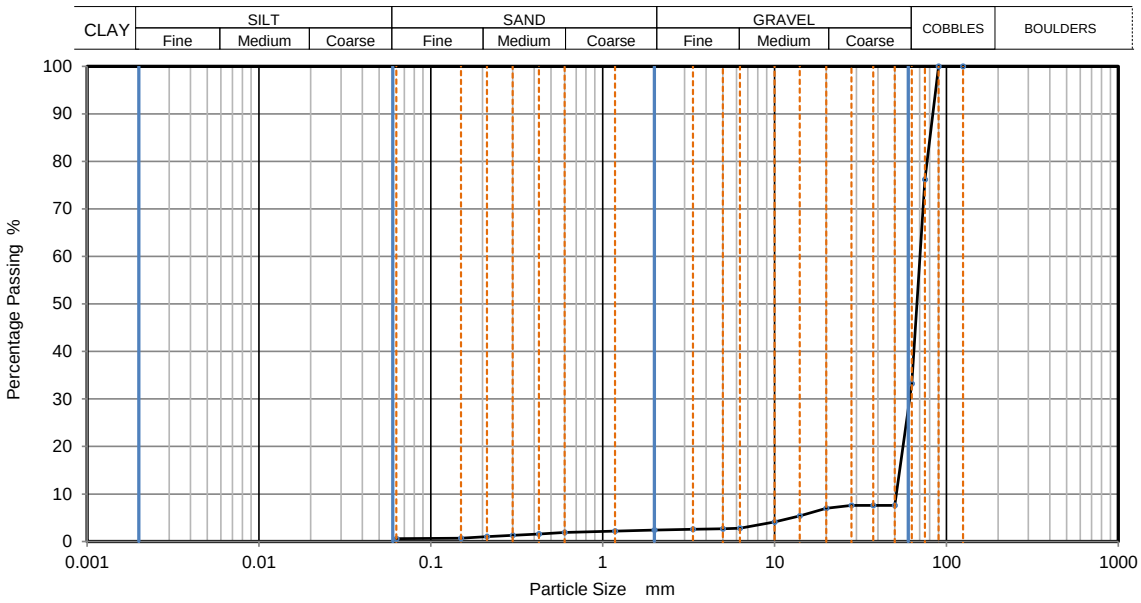
Particle Size Distribution
BS 1377-2: 1990 9.2
Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
25/04/2024

PARTICLE SIZE DISTRIBUTION

				Job Ref	34911
				Borehole/Pit No.	6C/2602/01
Site Name	Knights Road, Silvertown, London E16 2AT			Sample No.	-
Project No.	TJ3987F02	Client	Terragen	Depth Top	- m
Soil Description	Concrete cobbles with rare silty sandy fmc gravel inclusions			Depth Base	- m
				Sample Type	B
				Samples received	26/02/2024
				Schedules received	26/02/2024
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	27/02/2024
				Date tested	24/04/2024

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	76		
63	33		
50	8		
37.5	8		
28	8		
20	7		
14	5		
10	4		
6.3	3		
5	3		
3.35	3		
2	2		
1.18	2		
0.6	2		
0.425	2		
0.3	1		
0.212	1		
0.15	1		
0.063	1		

Sample Proportions	% dry mass
Very coarse	66.80
Gravel	30.81
Sand	1.84
Fines <0.063mm	0.56

Grading Analysis		
D100	mm	
D60	mm	70.2
D30	mm	61.2
D10	mm	51.1
Uniformity Coefficient		1.4
Curvature Coefficient		1

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 26/02/2024

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K4 Soils Laboratory

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UKAS TESTING

Checked and Approved

Initials: **J.P**

Date: 03/05/2024

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-34911 - 6C/2602/01
Client Ref No:	6C/2602/01 - TJ3987F02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	26/02/2024
Date Received:	26/02/2024
Date Tested:	24/04/2024
Method of Sampling:	Samples taken By Kalex
Material Description:	Concrete cobbles with rare silty sandy fmc gravel inclusions
NMC (%)	7.8
Target Specification:	SHW Series 600: Table 6/1 and Table 6/2 Class 6C - Selected uniformly graded granular material - Starter Layer

Results:

Unrepresentative lumps were present :	**NO**

Sample complies with specification limits:	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
125.0	100	100	100
37.5	7.6	0	100
6.30	2.8	0	100
3.35	2.6	0	35
2.00	2.4	0	10
0.60	1.9	0	2

UKAS TESTING
2519

Particle Size Distribution

BS 1377-2: 1990 9.2

Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
03/05/2024

TEST REPORT

K4 Soils Laboratory

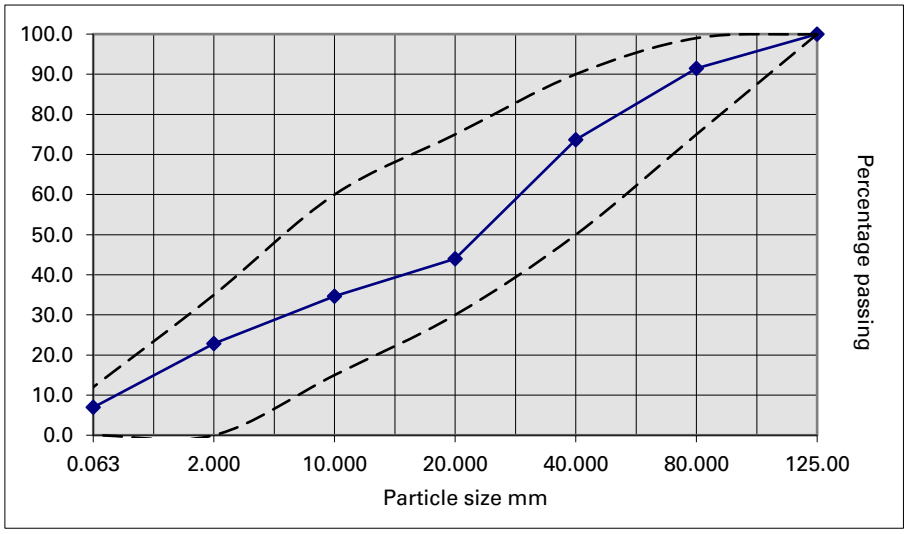
Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-34911 - 6F5/2602/01
Client Ref No:	6F5/2602/01 - TJ3987F02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	26/02/2024
Date Received:	26/02/2024
Date Tested:	24/04/2024
Method of Sampling:	Sample taken by Kalex
Material Description:	Fmc and cobble size crushed concrete with fmc brick fragments and clayey sand fines
NMC (%):	12
Target Specification:	SHW Series 600: Table 6/1 and Table 6/5
	Class 6F5 - Selected Granular Material - (coarse grading)

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
125.0	100	100	100
80.0	91	75	99
40.0	74	50	90
20.0	44	30	75
10.0	35	15	60
2.0	23	0	35
0.063	6.9	0	12



Sample complies with specification limits:	**YES**

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

UKAS TESTING
2519

Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
03/05/2024

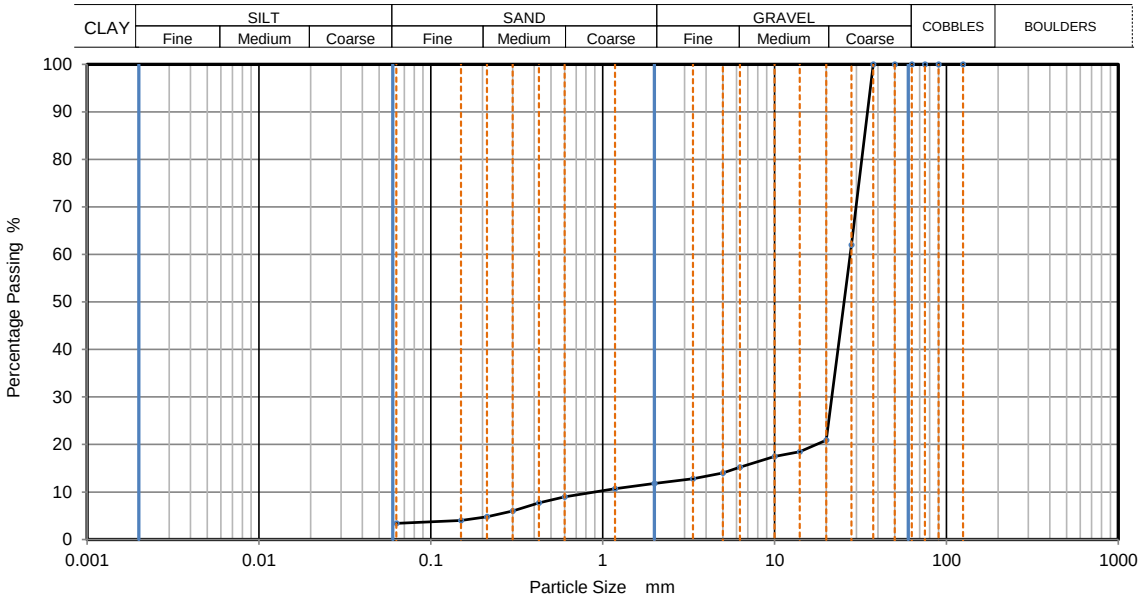
Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

All samples connected with this report ,incl any on 'hold' will be stored and disposed off according to Company policy. A copy of this policy is available on request.

PARTICLE SIZE DISTRIBUTION

Site Name	Knights Road, Silvertown, London E16 2AT			Job Ref	35256
				Borehole/Pit No.	6N/2904/01
Project No.	TJ3987H02	Client	Terragen	Sample No.	-
Soil Description	Greyish brown fmc sub-rounded gravel with clayey sand fines			Depth Top	- m
				Depth Base	- m
				Sample Type	B
				Samples received	30/04/2024
				Schedules received	30/04/2024
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	01/05/2024
				Date tested	28/05/2024

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	62		
20	21		
14	19		
10	18		
6.3	15		
5	14		
3.35	13		
2	12		
1.18	11		
0.6	9		
0.425	8		
0.3	6		
0.212	5		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	89
Sand	8
Fines <0.063mm	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	27.5
D_{30}	mm	21.5
D_{10}	mm	0.898
Uniformity Coefficient		31
Curvature Coefficient		19

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 29/04/2024

NOTE: The report shall not be reproduced except in full without approval of the laboratory

K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

Initials: J.P

Date: 18/06/2024

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-35256 - 6N/2904/01
Client Ref No:	6N/2904/01 - TJ3987H02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	29/04/2024
Date Received:	30/04/2024
Date Tested:	28/05/2024
Method of Sampling:	Samples taken By Kalex
Material Description:	Greyish brown fmc sub-rounded gravel with clayey sand fines
Target Specification:	DOT Specification for Highway Works Class 6N (SHW Series 600: Table 6/2)

Results:

Unrepresentative lumps were present:	**NO**

Does Sample complies with specification limits	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
75.0	100	100	100
0.063	3	0	15

UKAS TESTING 2519

Particle Size Distribution

BS 1377-2: 1990 9.2

Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
18/06/2024

TEST REPORT

K4 Soils Laboratory

Sample Details

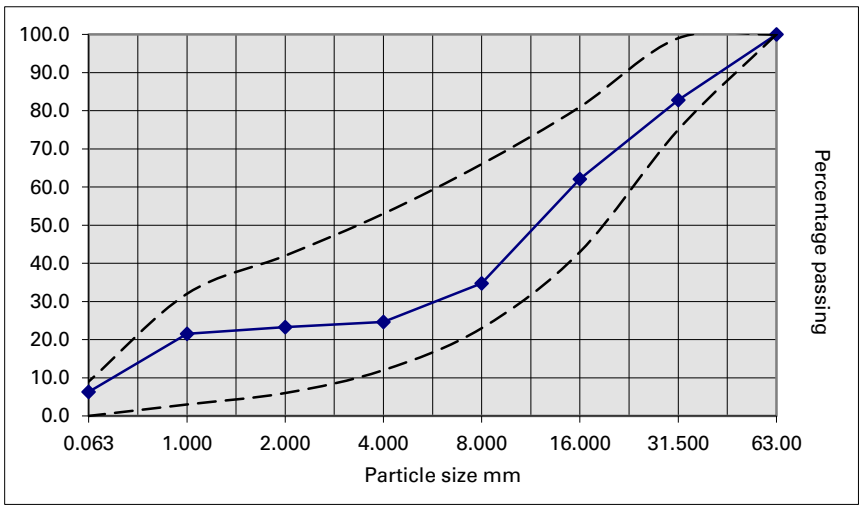
Certificate of sampling received:	Yes
Laboratory Ref No:	K4-35457 - T1/3105/01
Client Ref No:	T1/3105/01 - TJ3987I02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	31/05/2024
Date Received:	03/06/2024
Date Tested:	22/07/2024
Method of Sampling:	Sample taken by Kalex
Material Description:	Fmc crushed concrete, gravel and grey sandy fines
NMC (%):	9.3
Aggregate Type and Nominal Size:	Type 1 Crushed concrete
Target Specification:	SHW Series 800: clause 803 Table 8/6a overall grading range
	Type 1 Unbound Mixture

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
63.0	100	100	100
31.5	83	75	99
16.0	62	43	81
8.0	35	23	66
4.0	25	12	53
2.0	23	6	42
1.0	22	3	32
0.063	6	0	9

Percent in Fraction Size			
Fraction Size	Percentage	Specification Limits	
8/16	27	7	30
4/8	10	7	30



Sample complies with specification limits:	**YES**

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

UKAS TESTING
2519

Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
01/08/2024

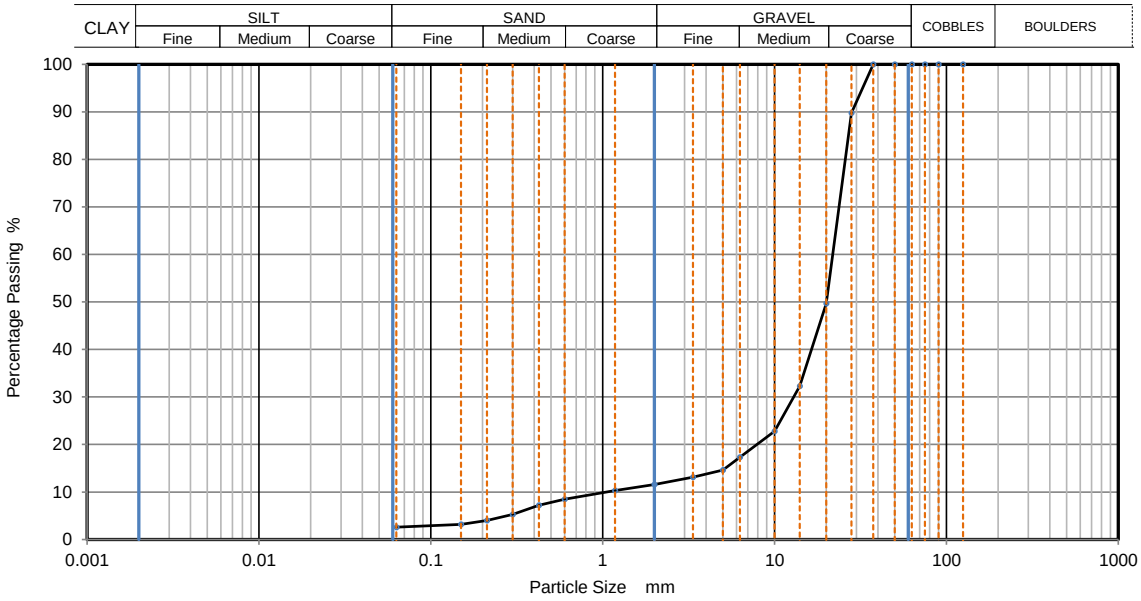
Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

All samples connected with this report ,incl any on 'hold' will be stored and disposed off according to Company policy. A copy of this policy is available on request.

PARTICLE SIZE DISTRIBUTION

Site Name	Knights Road, Silvertown, London E16 2AT			Job Ref	35604
				Borehole/Pit No.	6N/2506/01
Project No.	TJ3987J02	Client	Terragen	Sample No.	-
Soil Description	Fmc crushed concrete and brick fragments with silty sand fines			Depth Top	- m
				Depth Base	- m
				Sample Type	B
				Samples received	26/06/2024
				Schedules received	26/06/2024
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	27/06/2024
				Date tested	14/08/2024

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	50		
14	32		
10	23		
6.3	17		
5	15		
3.35	13		
2	12		
1.18	10		
0.6	9		
0.425	7		
0.3	5		
0.212	4		
0.15	3		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	88
Sand	9
Fines <0.063mm	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	21.8
D_{30}	mm	12.9
D_{10}	mm	1.04
Uniformity Coefficient		21
Curvature Coefficient		7.3

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 25/06/2024

NOTE: The report shall not be reproduced except in full without approval of the laboratory

K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

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Tel: 01923 711288

Checked and Approved

Initials: J.P

Date: 03/09/2024

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-35604 - 6N/2506/01
Client Ref No:	6N/2506/01 - TJ3987J02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	25/06/2024
Date Received:	26/06/2024
Date Tested:	14/08/2024
Method of Sampling:	Samples taken By Kalex
Material Description:	Fmc crushed concrete and brick fragments with silty sand fines
Target Specification:	DOT Specification for Highway Works Class 6N (SHW Series 600: Table 6/2)

Results:

Unrepresentative lumps were present:	**NO**

Does Sample complies with specification limits	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
75.0	100	100	100
0.063	3	0	15

UKAS TESTING 2519

Particle Size Distribution

BS 1377-2: 1990 9.2

Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
03/09/2024

TEST REPORT

K4 Soils Laboratory

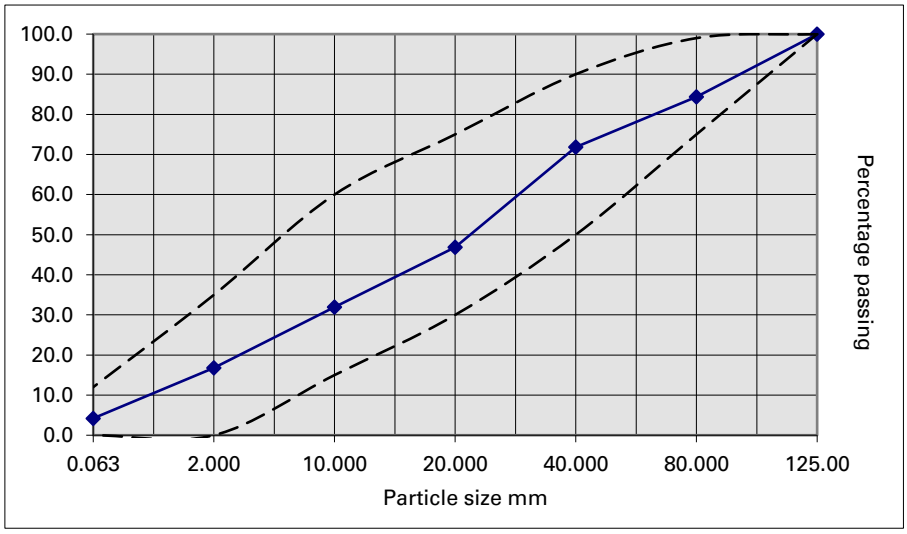
Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-35806 - 6F5/3007/01
Client Ref No:	6F5/3007/01 - TJ3987K02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	30/07/2024
Date Received:	02/08/2024
Date Tested:	16/09/2024
Method of Sampling:	Sample taken by Kalex
Material Description:	Fmc and cobble size concrete fragments with silty sand fines
NMC (%):	3.0
Target Specification:	SHW Series 600: Table 6/1 and Table 6/5
	Class 6F5 - Selected Granular Material - (coarse grading)

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
125.0	100	100	100
80.0	84	75	99
40.0	72	50	90
20.0	47	30	75
10.0	32	15	60
2.0	17	0	35
0.063	4	0	12



Sample complies with specification limits:	**YES**

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

UKAS TESTING
2519

Particle Size Distribution
BS EN 933-1: 2012
Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved
Initials: J.P
25/09/2024

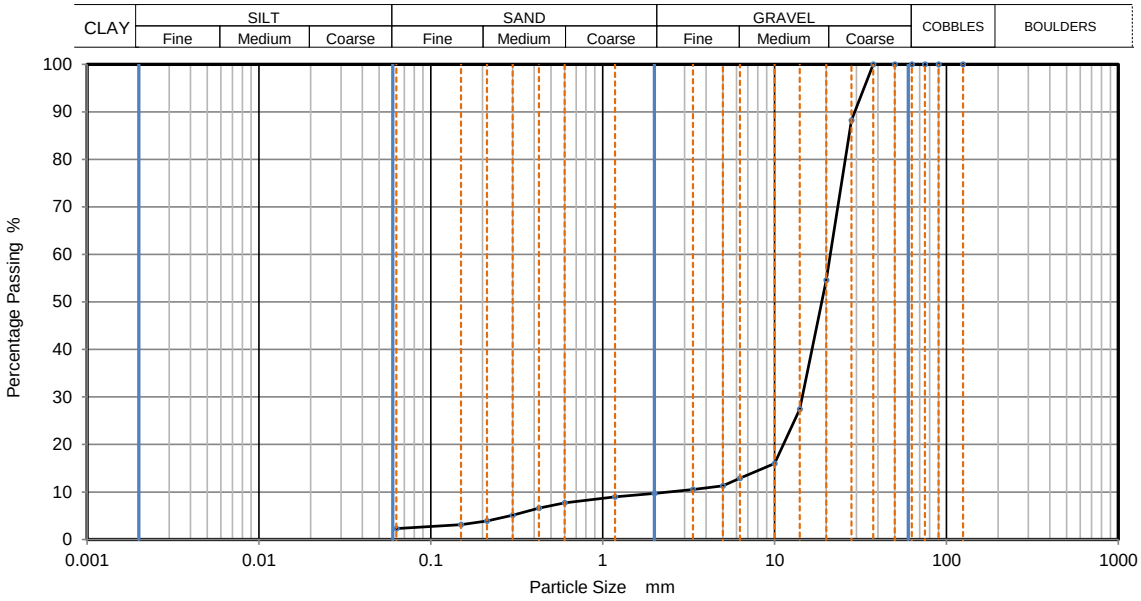
Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

All samples connected with this report ,incl any on 'hold' will be stored and disposed off according to Company policy. A copy of this policy is available on request.

PARTICLE SIZE DISTRIBUTION

Site Name	Knights Road, Silvertown, London E16 2AT			Job Ref	35806
				Borehole/Pit No.	6N/3007/01
Project No.	TJ3987K02	Client	Terragen	Sample No.	-
Soil Description	Fmc crushed concrete and brick fragments with rare silty sand fines			Depth Top	- m
				Depth Base	- m
				Sample Type	B
				Samples received	02/08/2024
				Schedules received	02/08/2024
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	05/08/2024
				Date tested	16/09/2024

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	88		
20	55		
14	27		
10	16		
6.3	13		
5	11		
3.35	11		
2	10		
1.18	9		
0.6	8		
0.425	7		
0.3	5		
0.212	4		
0.15	3		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0
Gravel	91
Sand	7
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	21.1
D_{30}	mm	14.5
D_{10}	mm	2.49
Uniformity Coefficient		8.5
Curvature Coefficient		4

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 30/07/2024

NOTE: The report shall not be reproduced except in full without approval of the laboratory

UKAS TESTING
2519

K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU
Email: james@k4soils.com
Tel: 01923 711288

Checked and Approved

Initials: J.P

Date: 25/09/2024

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-35806 - 6N/3007/01
Client Ref No:	6N/3007/01 - TJ3987K02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	30/07/2024
Date Received:	02/08/2024
Date Tested:	16/09/2024
Method of Sampling:	Samples taken By Kalex
Material Description:	Fmc crushed concrete and brick fragments with rare silty sand fines
Target Specification:	DOT Specification for Highway Works Class 6N (SHW Series 600: Table 6/2)

Results:

Unrepresentative lumps were present:	**NO**

Does Sample complies with specification limits	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
75.0	100	100	100
0.063	2	0	15

UKAS TESTING 2519

Particle Size Distribution

BS 1377-2: 1990 9.2

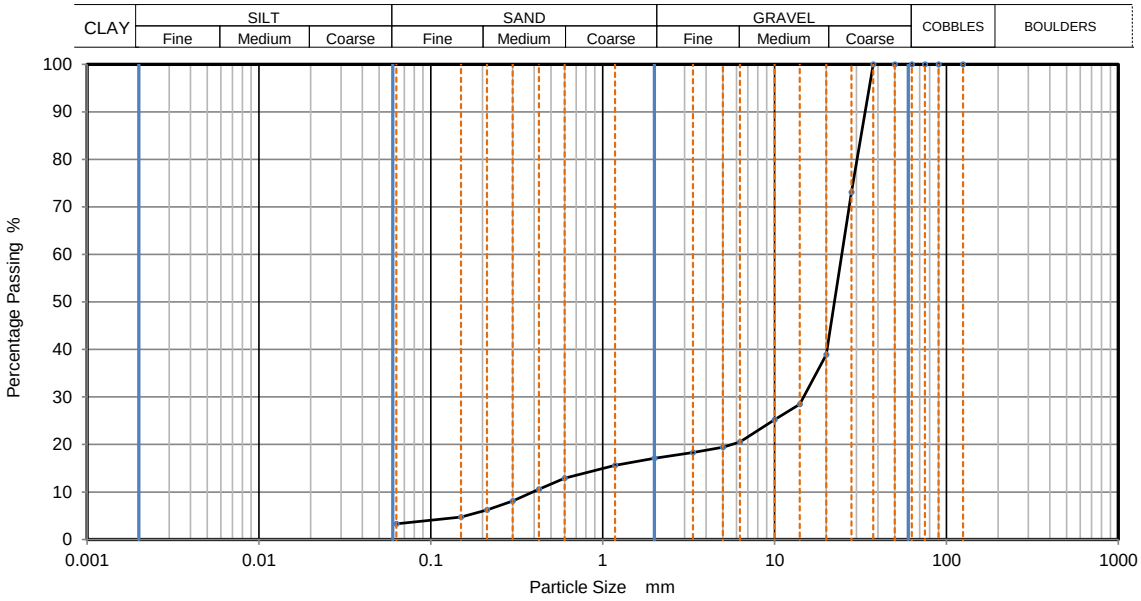
Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
25/09/2024

PARTICLE SIZE DISTRIBUTION

Site Name	Knights Road, Silvertown, London E16 2AT			Job Ref	35960
				Borehole/Pit No.	6N/3008/01
Project No.	TJ3987L02	Client	Terragen	Sample No.	-
				Depth Top	- m
Soil Description	Grey fmc crushed concrete with occasional brick and tarmac fragments and silty sand fines			Depth Base	- m
				Sample Type	B
				Samples received	02/09/2024
				Schedules received	02/09/2024
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	03/09/2024
				Date tested	14/10/2024

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	73		
20	39		
14	29		
10	25		
6.3	21		
5	19		
3.35	18		
2	17		
1.18	16		
0.6	13		
0.425	11		
0.3	8		
0.212	6		
0.15	5		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	83
Sand	14
Fines <0.063mm	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	24.6
D_{30}	mm	14.7
D_{10}	mm	0.392
Uniformity Coefficient		63
Curvature Coefficient		23

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Sampled - 30/08/2024

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K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

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Tel: 01923 711288

Checked and Approved

Initials: J.P

Date: 22/10/2024

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

TEST REPORT

K4 Soils Laboratory

Sample Details

Certificate of sampling received:	Yes
Laboratory Ref No:	K4-35960 - 6N/3008/01
Client Ref No:	6N/3008/01 - TJ3987L02
Sampling Location:	Knights Road, Silvertown, London E16 2AT
Name of Source:	Knights Road, Silvertown, London E16 2AT
Date Sampled:	30/08/2024
Date Received:	02/09/2024
Date Tested:	14/10/2024
Method of Sampling:	Samples taken By Kalex
Material Description:	Grey fmc crushed concrete with occasional brick and tarmac fragments and silty sand fines
Target Specification:	DOT Specification for Highway Works Class 6N (SHW Series 600: Table 6/2)

Results:

Unrepresentative lumps were present:	**NO**

Does Sample complies with specification limits	**YES**

BS Test Sieve	Cumulative Percentage	Specification Limits	
75.0	100	100	100
0.063	3	0	15

UKAS TESTING 2519

Particle Size Distribution

BS 1377-2: 1990 9.2

Determination of particle size Distribution - Sieving Method

Checked and Approved
Initials: J.P
22/10/2024

TEST REPORT

K4 Soils Laboratory

Sample Details

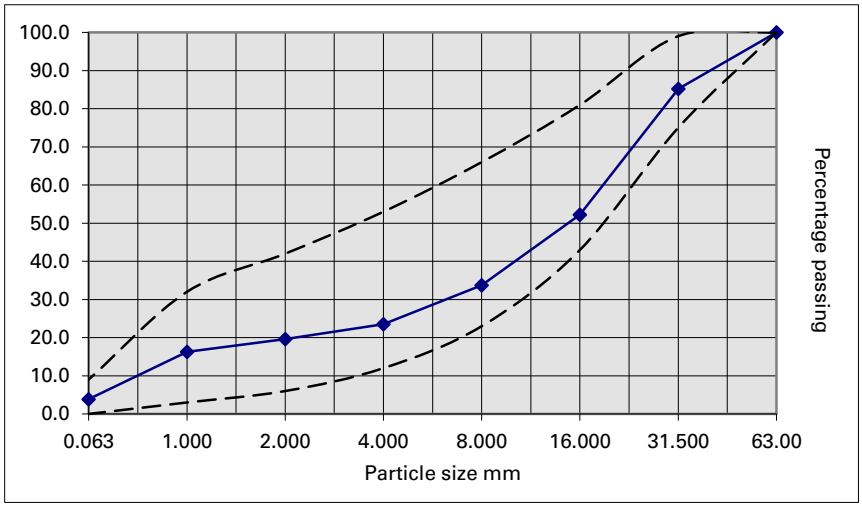
Certificate of sampling received:	Yes
Laboratory Ref No:	K4-35960 - T1/3008/01
Client Ref No:	T1/3008/01 - TJ3987L02
Sampling Location:	Knights Road, Silvertown, London, E16 2AT
Name of Source:	Knights Road, Silvertown, London, E16 2AT
Date Sampled:	30/08/2024
Date Received:	02/09/2024
Date Tested:	10/10/2024
Method of Sampling:	Sample taken by Kalex
Material Description:	Grey fmc crushed concrete with brick and occasional tarmac fargments
NMC (%):	3.7
Aggregate Type and Nominal Size:	Type 1 Crushed concrete
Target Specification:	SHW Series 800: clause 803 Table 8/6a overall grading range
	Type 1 Unbound Mixture

Results:

Unrepresentative lumps were present :	**NO**

BS Test Sieve	Cumulative Percentage Passing	Specification limits	
63.0	100	100	100
31.5	85	75	99
16.0	52	43	81
8.0	34	23	66
4.0	24	12	53
2.0	20	6	42
1.0	16	3	32
0.063	4	0	9

Percent in Fraction Size			
Fraction Size	Percentage	Specification Limits	
8/16	18	7	30
4/8	10	7	30



Sample complies with specification limits:	**YES**

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

UKAS TESTING

2519

Particle Size Distribution

BS EN 933-1: 2012

Determination of particle size distribution of aggregate sample-washing and sieving method

Checked and Approved

Initials: J.P

22/10/2024

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

All samples connected with this report ,incl any on 'hold' will be stored and disposed off according to Company policy. A copy of this policy is available on request.

Appendix R3
SRC Sheepscoate

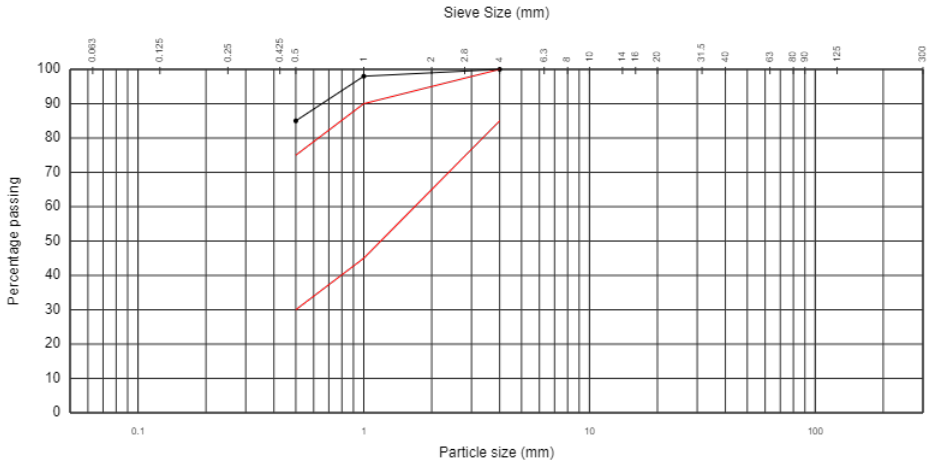
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TEST REPORT: DETERMINATION OF PARTICLE SIZE DISTRIBUTION

BS EN 933-1 : 2012 Washing & Dry Sieving

REPORT NUMBER:	C5001838 / 316856.1.1.1		
SAMPLE NUMBER:	502290	CLIENT:	Sewells Reservoir Construction Ltd T/A SRC Group
CLIENT REF:	SRC SHEEPCOTES P 0/2 SOFT SAND	ADDRESS:	Crown Business Centre, Old Ipswich Road , Ardleigh , Colchester ,
DATE SAMPLED:	11/10/2024	SITE:	Sheepcoates
SAMPLED BY:	Client	SOURCE / SUPPLIER:	SRC,
DATE RECEIVED:	17/10/2024	MATERIAL:	PRIMARY 0/2 SOFT SAND
DATE COMPLETED:	25/10/2024	PROPOSED CLASSIFICATION:	Fill Sand SRC
TESTED BY:	James Gough	LOCATION:	SRC SHEEPCOTES
ENVIRONMENTAL CONDITIONS:	Unknown	SAMPLING PLAN:	Client Specification
		METHOD OF SAMPLING:	Unknown

RESULT **Test Location: MT Billericay**



Applied Specification: Fill Sand SRC - SRC Client Declared Specification
Specification stated as requested, no indication of conformity applied

Uniformity Coefficient (D60/D10) 3
BS EN ISO 14688-2: 2018.

SIEVE ANALYSIS

Particle Diameter mm	Passing %	Specification Limits
500	100	
300	100	
125	100	
90	100	
80	100	
63	100	
40	100	
31.5	100	
20	100	
16	100	
14	100	
10	100	
8	100	
6.3	100	
4	100	85 - 100
2.8	99	
2	99	
1	98	45 - 90
0.5	85	30 - 75
0.425	75	
0.25	36	
0.125	10	
0.063	2.2	

Remarks:
Test results reported relate only to the items tested.
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Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation.The laboratory does not apply a conformity statement to test reports as standard, unless specifically requested by the customer.

For and on behalf of CTS
James Gough - Senior Lab Technician

Approved Signatory
Report date 28-Oct-24

4161

Report Format: PSDagg/TP17/Rep Issue 1 Rev 1 08/23

Lawness Barns
Mountnessing Road
Billericay
Essex CM12 0TS

0343 227 8545
enquiries@constructiontesting.co.uk
www.constructiontesting.co.uk

END OF REPORT

Construction Testing Solutions Ltd.
Registered in England No. 05998333

Appendix R4
SRC Wembley

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Aggregate Specification Datasheet

Supply Plant: Torr Quarry
Specification: SHW: Series 800
Designation: Type 1 0/31,5 UF_9 OC_{75}

Sieve size (mm)	Percentage by Mass Passing				Specification Limits
	Overall Grading Range	Supplier Declared Value Range	Suppliers Declared Value	Typical Grading	
63	100	-	-	100	100
31,5	75 – 100	-	-	98	75 - 100
16	43 – 81	54 – 72	66	54	51 - 81
8	23 – 66	33 – 52	49	48	34 - 64
4	12 – 53	21 – 38	35	41	20 - 50
2	6 – 42	14 – 27	27	29	14 - 40
1	3 – 32	9 - 20	20	20	10 - 30
0,063	0 - 9	-	-	7.9	0 - 9
Additional Grading Requirements					
-16 / +8				20	7 - 30
-8 / +4				14	7 - 30

Requirements for Aggregates Used in Unbound Mixtures		
Material Properties	**Reporting Value**	**Specification Requirement**
Los Angeles Value	19	LA_{50}
Micro Deval	15	$M_{DE}NR$
Magnesium Sulfate Soundness	11	MS_{35}
Water Absorption	0.8%	$WA_{24}NR$
All Other BS EN 13242 Aggregate Requirements	-	Category $_{NR}$
Plasticity	Non-plastic	Non-plastic

Limitations to Use		
Water-Soluble Sulphate BS EN 1744-1, Clause 10	< 50mg/l	< 1500mg/l (SO_4)
Total Sulfur BS EN 1744-1, Clause 11	0.2%	< 1%
Aggregate Type BS EN 932-3, BS EN 13242 Annex A	Limestone	Limestone, Chalk, Dolomite, Blast Furnace Slag, Steel Slag, Crushed Concrete
Frost Heave BS 812-124	4.8mm	< 15mm

Issued by: Chloe Gullock, Technical Sales Support Manager
Date: 15th April 2024

It is the sole responsibility of the certificate holder to ensure the validity and current status of all information herein

Appendix R5
SRC Barking

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Site Analytical Services Ltd.

Site Investigations, Analytical & Environmental Chemists, Laboratory Testing Services.

Units 14 + 15, River Road Business Park,
33 River Road, Barking, Essex IG11 0EA

Tel: 0208 594 8134
Fax: 0208 594 8072
E-Mail: services@siteanalytical.co.uk

Directors: J. S. Warren, M.R.S.C., P. C. Warren, J. I. Pattinson, BSc (Hons). MSc
Consultants: G. Evans, BSc., M.Sc., P.G. Dip., FGS., MIEnvSc. A. J. Kingston, BSc C.Eng. MIMM
F. J. Gibbs, F.I.B.M.S. F.I.F.S.T., F.R.S.H. K. J. Blanchette

Your Ref: ORDER NO. 36044
MATTHEW YEATES

Our Ref: 24/39044-1
JSW/LB

SAMPLE OF 'CRUSHED CONCRETE' – DOT TYPE 1
EX: BARKING

SUBMITTED BY SRC AGGREGATES LIMITED

RECEIVED ON 10th OCTOBER 2024

INTRODUCTION

A bulk sample of crushed concrete was received into the laboratory for determination of Frost Susceptibility.

RESULTS

The sample was sub-contracted to SOCOTEC UK (a UKAS accredited laboratory) for the required determinations and the results are contained in the Appendix to this report.

The sample was found to be *Non-Frost Susceptible.*

p.p. SITE ANALYTICAL SERVICES LIMITED

25th November 2024

J S Warren M.R.S.C.
DIRECTOR

Site Analytical Services Ltd.

A P P E N D I X

SOCOTEC UK Limited

Frost Susceptibility

SOCOTEC UK Limited
Unit 11, Cowley Mill Trading Estate
Longbridge Way, Uxbridge
Middlesex
UB8 2YG, United Kingdom
Telephone: 01895 235 235

Frost Heave Test Report

TEST REPORT

UKAS TESTING 0001

Client Details

Client: SITE ANALYTICAL SERVICES LIMITED
Address: UNITS 14 & 15
RIVER ROAD BUSINESS PARK
33 RIVER ROAD
BARKING , ESSEX
IG11 0EA
Project: HQ, Units 14 & 15, 33 River Rd, Barking IG11 0EA

Code: P230510

Report Details

Report No: FHR:SOU24-05427-S002
Date of Issue: 22/11/2024
Issue No.: 1
Recipients: MBX_Mat Admin, Portal Upload, Site Analytical Services

Sample Details

Date Sampled: 11/10/2024
SOCOTEC Sample Ref: SOU24-05427-S002
Client Sample Ref: 2
Location: 2
Sample Type: Bulk Disturbed Sample
Date Received: 14/10/2024

Material Description:
Specification: Type 1 SHW: Nov 2021: Series 800: Clause 803
Supplier:
Source:
Sampled By: SOCOTEC South Laboratory

Test Details

Tested Date:

Test Results - Particle Size Distribution

[BS EN 933-1:2012]

Sieve Aperture Size (mm)	Passing (%)		Specification Limits
	Submitted Sample	Stable Specimen	
63	100	100	100
31.5	96	96	75 - 99
14	79	80	
10	71	71	
4	49	52	12 - 53
2	39	40	6 - 42
1	30	28	3 - 32
0.063	5	6	0 - 9

Test Results - Frost Heave

[BS 812-124:2009]

Reference Specimen #	Heave (mm)	Requirement
1	10.5	
2	10.0	
3	13.0	
Mean	11.2	13.6 ± 4mm
Max Range (mm)	3.0	Not to exceed 6mm

Maximum Heave After 96 hours

Test Specimen #	Heave (mm)
1	12.5
2	11.5
3	13.0
Mean	12.3

Mean Maximum Heave after 96 hours must be <=15

Laboratory Reference Density and Water Content

[BS EN 13286-4:2021]

Retained on 40mm Sieve (%)	Optimum Water Content (%)	Maximum Dry Density (Mg/m³)
4	13.0	1.96

Classification

NON-FROST SUSCEPTIBLE

Remarks

Review

Signed: 

Name: Mohamed Jaffer
Job Title: Technical Manager

Certified that testing was carried out in accordance with the test methods identified above. This test report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

For and on behalf of SOCOTEC UK Ltd

The results relate to the item(s) tested only. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
SOCOTEC UK Limited. Registered in England No. 2880501. Registered Office: SOCOTEC House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

SOCOTEC UK Limited
Unit 11, Cowley Mill Trading Estate
Longbridge Way, Uxbridge
Middlesex
UB8 2YG, United Kingdom
Telephone: 01895 235 235

Dry Density/Water Content Relationship

TEST REPORT

UKAS TESTING 0001

Project Details

Client:	SITE ANALYTICAL SERVICES LIMITED
Client Address:	UNITS 14 & 15 RIVER ROAD BUSINESS PARK 33 RIVER ROAD BARKING , ESSEX IG11 0EA
Project Name:	HQ, Units 14 & 15, 33 River Rd, Barking IG11 0EA
Project Code:	P230510

Report Details

Report No.:	MDD:SOU24-05427-S002
Report Date:	01/11/2024
Issue No.:	1
Recipients:	

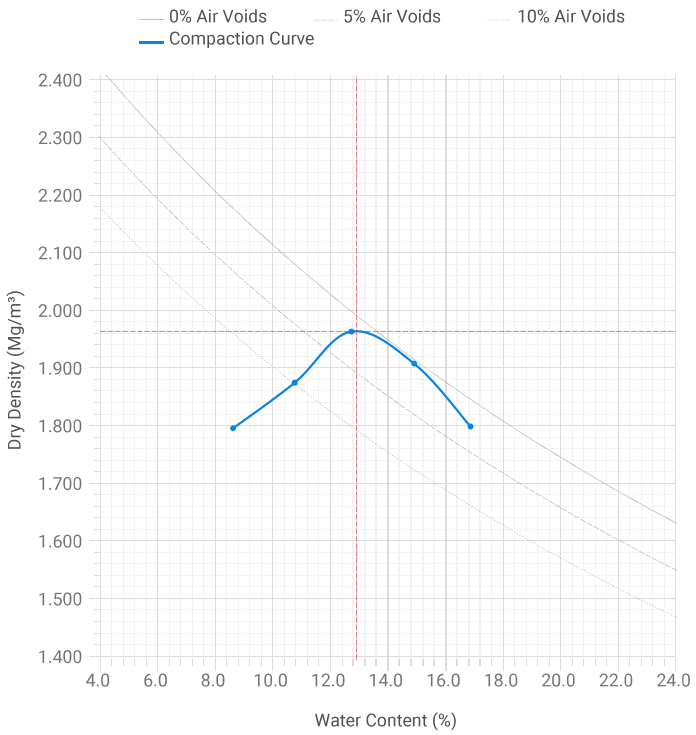
Sample Details

SOCOTEC Sample Ref:	SOU24-05427-S002	Material Description:	
Client Sample Ref:	2	Specification:	Type 1 SHW: Nov 2021: Series 800: Clause 803
Date Sampled:	11/10/2024	Supplier:	–
Date Received:	14/10/2024	Source:	
Sample Type:	Bulk Disturbed Sample	General Location:	SAS 24/39044
Sample Location:	2	Sampled By:	Socotec
Sampling Cert Received?:	No		

Test Results

BS 1377-2 Clause 11.7 - 2022

Maximum Dry Density (Mg/m³):	1.96
Optimum Water Content (%):	13
Grading Zone:	4
Method of Test:	11.7.5.2
Compaction Method:	Vibrating Hammer
Sample Preparation Procedure:	11.2.4.2
Sub-Samples Used:	Multiple
Aggregations Broken Down By:	Not Required
To Pass Sieve Size (mm):	–
Retained 37.5mm Sieve (%):	4
Retained 20mm Sieve (%):	24
Test Fraction Particle Density (Mg/m³):	2.68
Determined By:	Assumed
Remarks:	Crushed Concrete with Brick, Blacktop & Fines
Date Tested:	01/11/2024



Review

Signed:



Signed Date: 01/11/2024

Mohamed Jaffer - Technical Manager

For and on behalf of SOCOTEC UK Limited
Certified that testing was carried out in accordance with the test methods identified herein. This test report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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SOCOTEC UK Limited
Unit 11, Cowley Mill Trading Estate
Longbridge Way, Uxbridge
Middlesex
UB8 2YG, United Kingdom
Telephone: 01895 235 235

Particle Size Distribution

TEST REPORT

UKAS TESTING 0001

Project Details

Client:	SITE ANALYTICAL SERVICES LIMITED
Client Address:	UNITS 14 & 15 RIVER ROAD BUSINESS PARK 33 RIVER ROAD BARKING , ESSEX IG11 0EA
Project Name:	HQ, Units 14 & 15, 33 River Rd, Barking IG11 0EA
Project Code:	P230510

Report Details

Report No.:	PSD:SOU24-05427-S002/1
Report Date:	23/10/2024
Issue No.:	1
Recipients:	MBX_Mat Admin Site Analytical Services

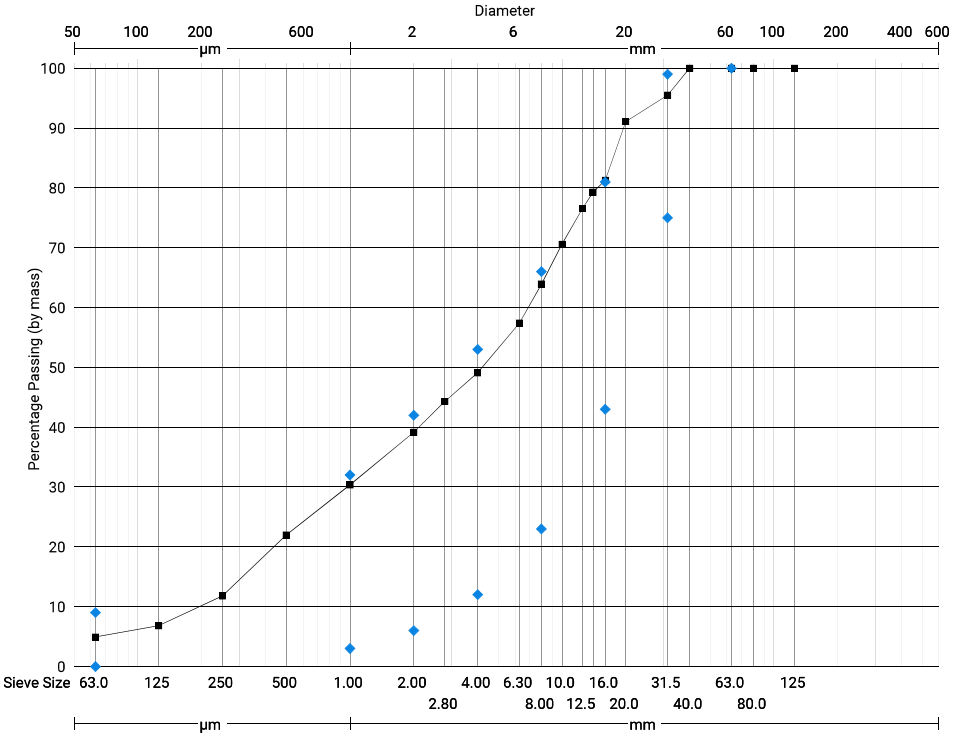
Sample Details

SOCOTEC Sample Ref:	SOU24-05427-S002	Material Description:	
Client Sample Ref:	2	Specification:	Type 1 SHW: Nov 2021: Series 800: Clause 803
Date Sampled:	11/10/2024	Supplier:	–
Date Received:	14/10/2024	Source:	
Sample Type:	Bulk Disturbed Sample	General Location:	SAS 24/39044
Sample Location:	2	Sampled By:	Socotec
Sampling Cert Received?:	No		

Test Results

BS EN 933-1 - 2012

Sieve Size	Passing (%)	Limits
125 mm	100	
80.0 mm	100	
63.0 mm	100	=100
40.0 mm	100	
31.5 mm	96	75 to 99
20.0 mm	91	
16.0 mm	81	43 to 81
14.0 mm	79	
12.5 mm	77	
10.0 mm	71	
8.00 mm	64	23 to 66
6.30 mm	57	
4.00 mm	49	12 to 53
2.80 mm	44	
2.00 mm	39	6 to 42
1.00 mm	30	3 to 32
500 µm	22	
250 µm	12	
125 µm	7	
63.0 µm	4.9	0 to 9



Date Tested: 21/10/2024

Remarks: Crushed Concrete with Brick, Blacktop & Fines

Review

Signed:

Signed Date: 23/10/2024

Mohamed Jaffer - Technical Manager

For and on behalf of SOCOTEC UK Limited
Certified that testing was carried out in accordance with the test methods identified herein. This test report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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SOCOTEC UK Limited
Unit 11, Cowley Mill Trading Estate
Longbridge Way, Uxbridge
Middlesex
UB8 2YG, United Kingdom
Telephone: 01895 235 235

Particle Size Distribution

TEST REPORT

UKAS TESTING 0001

Project Details

Client:	SITE ANALYTICAL SERVICES LIMITED
Client Address:	UNITS 14 & 15 RIVER ROAD BUSINESS PARK 33 RIVER ROAD BARKING , ESSEX IG11 0EA
Project Name:	HQ, Units 14 & 15, 33 River Rd, Barking IG11 0EA
Project Code:	P230510

Report Details

Report No.:	PSD:SOU24-05427-S002/2
Report Date:	22/11/2024
Issue No.:	1
Recipients:	MBX_Mat Admin Site Analytical Services

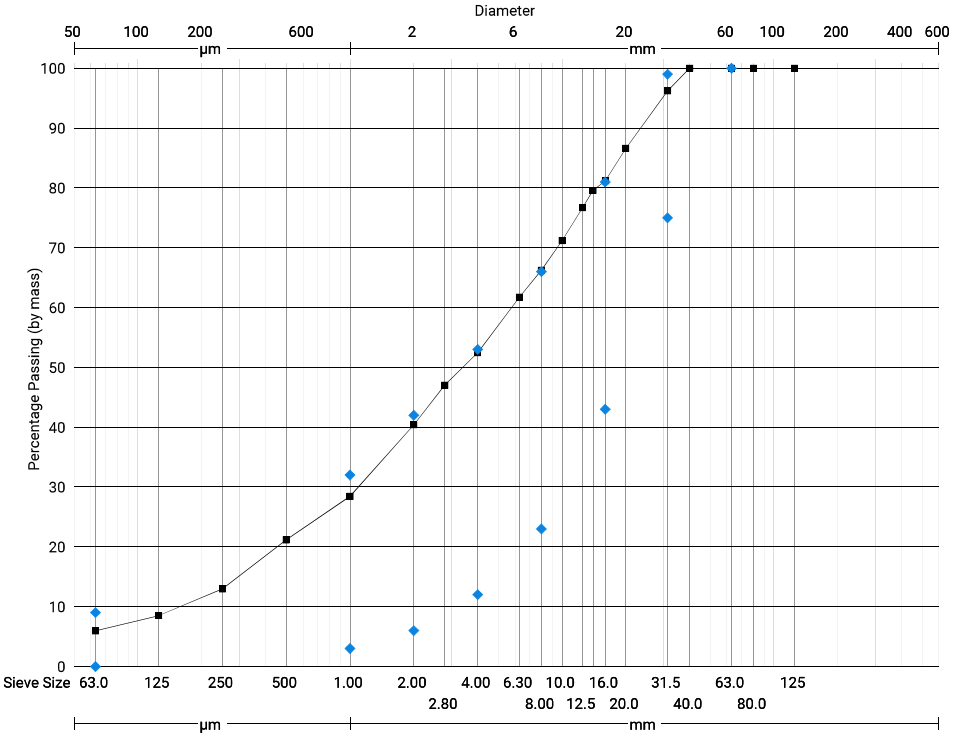
Sample Details

SOCOTEC Sample Ref:	SOU24-05427-S002	Material Description:	
Client Sample Ref:	2	Specification:	Type 1 SHW: Nov 2021: Series 800: Clause 803
Date Sampled:	11/10/2024	Supplier:	–
Date Received:	14/10/2024	Source:	
Sample Type:	Bulk Disturbed Sample	General Location:	SAS 24/39044
Sample Location:	2	Sampled By:	Socotec
Sampling Cert Received?:	No		

Test Results

BS EN 933-1 - 2012

Sieve Size	Passing (%)	Limits
125 mm	100	
80.0 mm	100	
63.0 mm	100	=100
40.0 mm	100	
31.5 mm	96	75 to 99
20.0 mm	87	
16.0 mm	81	43 to 81
14.0 mm	80	
12.5 mm	77	
10.0 mm	71	
8.00 mm	66	23 to 66
6.30 mm	62	
4.00 mm	52	12 to 53
2.80 mm	47	
2.00 mm	40	6 to 42
1.00 mm	28	3 to 32
500 µm	21	
250 µm	13	
125 µm	9	
63.0 µm	6.0	0 to 9



Date Tested: 18/11/2024

Remarks: Frost grading

Review

Signed:

Signed Date: 22/11/2024

Mohamed Jaffer - Technical Manager

For and on behalf of SOCOTEC UK Limited
Certified that testing was carried out in accordance with the test methods identified herein. This test report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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Site Analytical Services Ltd.

Site Investigations, Analytical & Environmental Chemists, Laboratory Testing Services.

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Consultants: G. Evans, BSc., M.Sc., P.G. Dip., FGS., MIEnvSc. A. J. Kingston, BSc C.Eng. MIMM
F. J. Gibbs, F.I.B.M.S. F.I.F.S.T., F.R.S.H. K. J. Blanchette

Your Ref: ORDER NO. 36044
MATTHEW YEATES

Our Ref: 24/39044-1
JSW/LB

SAMPLE OF 'CRUSHED CONCRETE' – DOT TYPE 1
EX: BARKING

SUBMITTED BY SRC AGGREGATES LIMITED

RECEIVED ON 10th OCTOBER 2024

INTRODUCTION

A sample of the above material was received into the laboratory for the following determinations:

1. Constituent materials analysis
2. Los Angeles Abrasion Value
3. Magnesium Sulphate Soundness Value
4. Plasticity index
5. Particle density and water absorption
6. Resistance to wear – Micro Deval Test
7. Crushed or broken & totally rounded particles (C90 3)
8. Acid Soluble Sulphate, Water Soluble Sulphate (2 : 1 water : sample extract), Total Sulphur, Total Potential Sulphate and Oxidisable Sulphides

Site Analytical Services Ltd.

Ref: 24/39044-1

RESULTS

The sample was sub-contracted to Celtest Limited (a UKAS accredited laboratory) for the required determinations and the results are contained in the Appendix to this report.

p.p. SITE ANALYTICAL SERVICES LIMITED

25th November 2024

J S Warren M.R.S.C.
DIRECTOR

A P P E N D I X ‘A’

Celtest Limited

Constituent materials analysis

Los Angeles Abrasion Value

Magnesium Sulphate soundness value

Plasticity index

Particle density and water absorption

Resistance to wear – Micro Deval Test

Crushed or broken & totally rounded particles (C90 3)

Acid Soluble Sulphate, Water Soluble Sulphate (2 : 1 water : sample extract), Total Sulphur, Total Potential Sulphate and Oxidisable Sulphides

celtest
CONSTRUCTION MATERIALS TESTING
A PHENNA GROUP COMPANY

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 24 October 2024
Test Report Ref: TR 1074924

Order No: 14825/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: Classification Test for the constituents of coarse recycled aggregate In accordance with **BS EN 933-11 2009**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126344**
Client Ref. No:	**24/39044-1**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**16/10/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**KH**
Material Description:	**DOT Type 1**
Target Specification:	**N/A**

RESULTS:

Floating Particles (FL)	**0 cm^3/kg**
Combined clay, soil and other (X)	**0.2 %**
Concrete, concrete products, mortar and Concrete Masonry Units (Rc)	**68 %**
Unbound Aggregate, Natural Stone and Hydraulically bound aggregate (Ru)	**24 %**
Clay masonry units, calcium silicate masonry units and aerated non-floating concrete (Rb)	**0.8 %**
Bituminous materials (Ra)	**7.3 %**
Glass (Rg)	**0.2 %**

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

Comments:	Report checked and approved by:
None	Izabella Kantor CS Team

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CONSTRUCTION MATERIALS TESTING
A PHENNA GROUP COMPANY

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 23 October 2024
Test Report Ref: TR 1074920

Order No: 14825/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Fragmentation of Aggregate - Los Angeles Test Method in accordance with **BS EN 1097-2: 2020**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126344**
Client Ref. No:	**24/39044-1**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**23/10/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**RW**
Material Description:	**DOT Type 1**
Target Specification:	**N/A**

RESULTS:

Size fraction from which the test portion was obtained: **14mm to 12.5mm**
12.5mm to 10.0mm

Los Angeles Coefficient (LA) = **31**

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These results relate only to the items tested.

Comments:	Report checked and approved by:
None	Izabella Kantor CS Team

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CONSTRUCTION MATERIALS TESTING
A PHENNA GROUP COMPANY

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 18 November 2024
Test Report Ref: TR 1074921

Order No: 14825/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Magnesium Sulfate Value of aggregate sample within the size range 10mm to 14mm in accordance with **BS EN 1367-2 : 2009**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126344**
Client Ref. No:	**24/39044-1**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**04/11/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**TD**
Material Description:	**DOT Type 1**
Target Specification:	**N/A**

RESULTS:

Magnesium Sulfate Value Portion 1 (MS_1) = 3.3%

Magnesium Sulfate Value Portion 2 (MS_2) = 4%

Mean Magnesium Sulfate Value (MS) = 4%

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

Comments	Report checked and approved by:
Proportion by mass of laboratory sample used for the test portion = 5% (nearest 5%)	Izabella Kantor CS Team

celtest
CONSTRUCTION MATERIALS TESTING
A PHENNA GROUP COMPANY

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 04 November 2024
Test Report Ref: TR 1074922

Order No: 14825/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Plastic Limit of a sample in accordance with **BS 1377:Part 2:1990 Clause 5.3**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126344**
Client Ref. No:	**24/39044-1**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**30/10/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**MJE**
Material Description:	**DOT Type 1**
Target Specification:	**N/A**

RESULTS:

History of sample	After wet sieving
% Materials passing 425µm	20
Plastic Limit	Non-Plastic

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These results relate only to the items tested.

Comments:	Report checked and approved by:
	Izabella Kantor CS Team

celtest
CONSTRUCTION MATERIALS TESTING
A PHENNA GROUP COMPANY

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 18 October 2024
Test Report Ref: TR 1074925
Order No: 14825/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Particle Density and water absorption for aggregate sample between 4 mm and 31.5mm, in accordance with **BS EN 1097-6: 2022 Clause 8.0**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126344**
Client Ref. No:	**24/39044-1**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**18/10/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**RW**
Material Description:	**DOT Type 1**
Target Specification:	**N/A**

RESULTS:

Particle density on an oven-dried basis (ρ_{rd}) =	**2.12 Mg/m³**
Particle density on a saturated and surface-dried basis (ρ_{ssd}) =	**2.23 Mg/m³**
Apparent Particle density (ρ_a) =	**2.38 Mg/m³**
Water absorption (of dry mass) (WA_{24}) =	**5.3 %**

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

Comments:
None

Report checked and approved by:
N. Hughes
Neil Hughes
Assistant Technical Manager

celtest
CONSTRUCTION MATERIALS TESTING
A PHENNA GROUP COMPANY

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 23 October 2024
Test Report Ref: TR 1074923

Order No: 14825/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Resistance to Wear of Aggregate - Micro Deval Test in accordance with **BS EN 1097-1 : 2023 (Wet Condition)**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126344**
Client Ref. No:	**24/39044-1**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**23/10/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**RW**
Material Description:	**DOT Type 1**
Target Specification:	**N/A**

RESULTS:

Micro Deval Coefficient (M_{DE}) (Test 1) =	**22.2**
Micro Deval Coefficient (M_{DE}) (Test 2) =	**23.2**
Mean Micro Deval Coefficient (M_{DE}) =	**23**
Tested Fraction Size d/D =	**10/14mm**

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

Comments:
None

Report checked and approved by:



Izabella Kantor
CS Team

celtest
CONSTRUCTION MATERIALS TESTING
A PHENNA GROUP COMPANY

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 31 October 2024
Test Report Ref: TR 1074926

Order No: 14825/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: Determination of percentage of crushed particles in coarse and all-in natural aggregates in accordance with **BS EN 933-5: 2022**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126344**
Client Ref. No:	**24/39044-1**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**16/10/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**BR**
Material Description:	**DOT Type 1**
Target Specification:	**SHW Series 800: Table 8/2 (EN 13242, Category $C_{90/3}$)**

RESULTS:

	Results	$C_{90/3}$ Specification
Particles with more than 50% of its surface crushed (C_c)	**98 %**	**90 - 100**
Totally crushed particles (C_{tc})	**94 %**	**-**
Totally rounded particles (C_{tr})	**0 %**	**0 - 3**

Discarded size fraction from test portions	N/A

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

Comments:
Deviation from reference method: Fraction Size 16mm/31.5mm
31.5mm/63mm contained <100 particles
Sample complies with specification limit for SHW Series 800: Table 8/2 (EN 13242, Category C90/3)

Report checked and approved by:

Izabella Kantor
CS Team

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 22 October 2024
Test Report Ref: TR 1074962
Order No: 14832/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Acid Soluble Sulfate of an Aggregate Sample in accordance with **BS EN 1744-1 : 2009 + A1 : 2012 Clause 12**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126352**
Client Ref. No:	**24/39044 - DOT Type 1**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**22/10/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**KL**
Material Description:	**DOT Type 1**
Target Specification:	**N/A**

RESULTS:

Acid Soluble Sulfate Content (SO_3) (%) = 1.1 (nearest 0.1%)

*95% Confidence limit** = *0.94% - 1.26%*

Acid Soluble Sulfate Content (SO_4) (%) = 1.4 (nearest 0.1%)

*95% Confidence limit** = *1.19% - 1.61%*

Acid Soluble Sulfate Content (SO_3) (%) = 1.1288 (nearest 0.0001%)**

Acid Soluble Sulfate Content (SO_4) (%) = 1.3545 (nearest 0.0001%)**

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

Comments

*95% confidence limit calculation:- Test Result ± expanded uncertainty.
Expanded uncertainty = combined uncertainty multiplied by a factor (k) of 2.
**Departure from specified procedure: additional reporting as SO_3 and SO_4 to 4 decimal places.

Report checked and approved by:

Izabella Kantor
CS Team

celtest
CONSTRUCTION MATERIALS TESTING
A PHENNA GROUP COMPANY

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 21 October 2024
Test Report Ref: TR 1074963

Order No: 14832/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Water Soluble Sulfate of Natural and Manufactured Aggregate in accordance with **BS EN 1744-1 : 2009 + A1 : 2012 : Clause 10.1**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126352**
Client Ref. No:	**24/39044 - DOT Type 1**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**21/10/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**KL**
Material Description:	**DOT Type 1**
Target Specification:	**N/A**

RESULTS:

	Result	
Water Soluble Sulfate Content (SO3) (%) =	**0.02**	**(nearest 0.01%)**
95% Confidence limit*	*0.014% - 0.026%*	
Water Soluble Sulfate Content (SO4) (%) =	**0.02**	**(nearest 0.01%)**
95% Confidence limit*	*0.014% - 0.026%*	
Water Soluble Sulfate Content (SO4) (%)** =	**0.0205**	**(nearest 0.0001%)**
Water Soluble Sulfate Content (SO4) (mg/l)** =	**103**	**(nearest 1 mg/l)**
Water Soluble Sulfate Content (SO4) (ppm)** =	**103**	**(nearest 1 ppm)**

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

Comments:
*95% confidence limit calculation:- Test Result ± expanded uncertainty. Expanded uncertainty = combined uncertainty multiplied by a factor (k) of 2.
**Departure from specified procedure: additional reporting as SO_4 to 4 decimal places, mg/l and ppm.

Report checked and approved by:
N. Hughes
Neil Hughes
Assistant Technical Manager

celtest
CONSTRUCTION MATERIALS TESTING
A PHENNA GROUP COMPANY

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 21 October 2024
Test Report Ref: TR 1074970
Order No: 14832/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determination of Total Potential Sulfate by Calculation using data obtained from Total Sulfur test carried out in accordance with **BS EN 1744-1: 2009 + A1: 2012 Clause 11**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126352**
Client Ref. No:	**24/39044 - DOT Type 1**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**21/10/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**PJ**
Material Description:	**DOT Type 1**
Target Specification:	**N/A**

RESULTS:

Total Sulfur Content as S (%) =		**0.6**
*95% Confidence limit**	=	*0.39% - 0.81%*
Total Potential Sulfate Content (%) =		**1.68**
*95% Confidence limit**	=	*0% - 3.47%*

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.
These results relate only to the items tested.

Comments / Departure from specified Procedure	Report checked and approved by:
*95% Confidence limit is the expanded uncertainty which is the combined uncertainty standard multiplied by a factor (k) of 2 #TPS calculaton is outside our scope of accreditation	 Izabella Kantor CS Team

celtest
CONSTRUCTION MATERIALS TESTING
A PHENNA GROUP COMPANY

Site Analytical Services Ltd
Units 14+15,River Road Business Park
33 River Road
Barking
Essex
IG11 0EA

Date: 23 October 2024
Test Report Ref: TR 1074971

Order No: 14832/STB

Contract: SRC Aggregates Limited, Barking Depot

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Oxidisable sulfides (OS) content of an Sample by calculation from **BS EN 1744-1:2009 + A1 2012 Cl 11 & Cl12**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S126352**
Client Ref. :	**24/39044**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**15/10/2024**
Date of Start of Test:	**23/10/2024**
Sampling Location:	**Unknown**
Name of Source:	**SRC Aggregates Limited, Barking Depot**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**PJ**
Material Description:	**DOT Type 1**
Target Specification:	**N/A**

RESULTS:

Oxidisable Sulfides (OS) (%) = 0.32 SO_4

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

Comments:	Report checked and approved by: N. Hughes Neil Hughes Assistant Technical Manager

Appendix R6
Travis Perkins

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CEMEX

GRADATION ANALYSIS TEST REPORT
for Product: 0/2 B/S/ New Material name
Supplier/ source: Hatfield

Material type: Drystone aggregate Test method: Wash grading to BS EN 933: part 1: 1997

SAMPLE INFORMATION

Sampled/ tested
Mon 03 June 2024/ 04-06-24
at 0000 hrs

Sample number HAT02114

Sample Point:	-	Sample Ref:	-
___	-	___	-
Sampling notes	-	Aggregate type	-
Remarks 1	-	Remarks 2	-

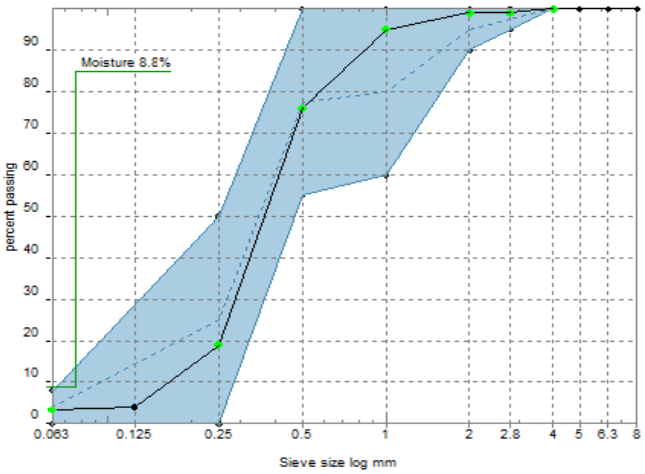
SAMPLE ANALYSIS

Sieve size	Percent passing	Specification limits	Complies ?
8mm	100	-	-
6.3mm	100	-	-
5mm	100	-	-
4mm	100	100 - 100	yes
2.8mm	99	95 - 100	yes
2mm	99	90 - 100	yes
1mm	95	60 - 100	yes
500µm	76	55 - 100	yes
250µm	19	0 - 50	yes
125µm	4	-	-
63µm	3.4	0.0 - 8.0	yes
Moisture content %	8.8	not specified	-
Uniformity coefficient	3	0 - 10	yes

Parameters are evaluated to the accuracy of spec. limits

REMARKS

Compliance status ok
Category A of A-C includes secondary parameters



Signed _____ Date ___/___/2024

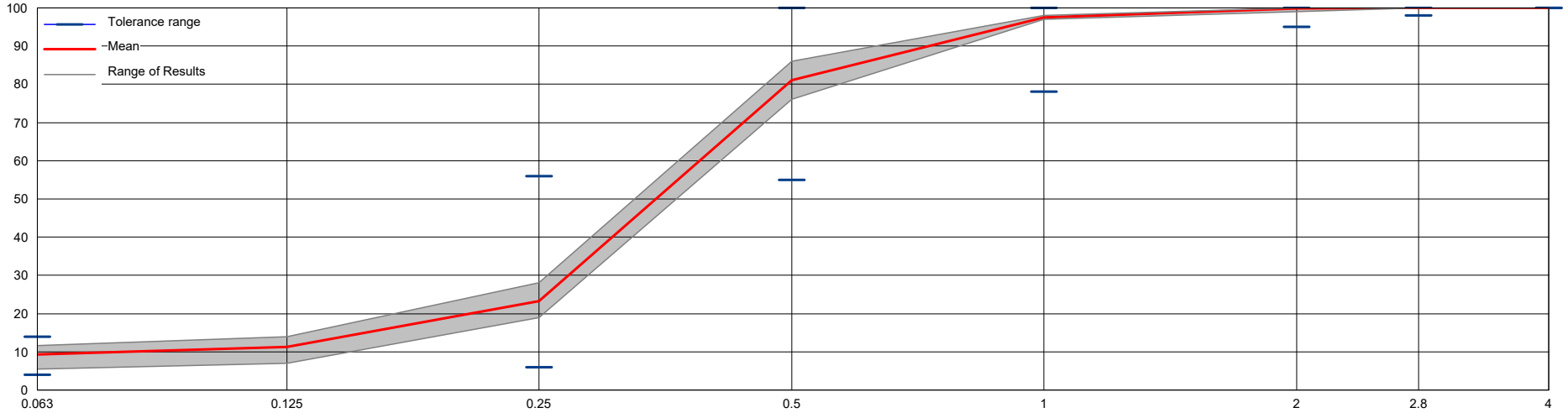
Gradlab GDS v7.14 © Hugh Lerwill www.gradlab.com. Licence#: CMX508 for CEMEX, Site/user name: Wick Quarry.

Material Type: Sand
Product: 0/2MM SEVENOAKS BUILDING SAND
Material Code: 110S240

Quarry: SEVENOAKS QUARRY
Site: all
Size/Specs: 0/2 Sevenoaks Build Sand evaluated against EN 13139

6 samples from 16/10/23 to 03/04/24 starting with sample no. 1

0/2 Sevenoaks Build Sand



Seq. No.	Sample No.	Sample date	Percentage PassingSieves (mm)																Retained on d/D (mm)		Moisture	Flakiness	Within	Complies
												4	2.8	2	1	0.5	0.25	0.125	0.063	no rec	no rec	%	FI	CtrlLmt	
1	41	16/10/23											100	100	98	81	28	14	11.6			11.3		-	yes
2	42	23/10/23											100	100	98	77	19	11	9.2			13.1		-	yes
3	43	30/10/23											100	100	98	86	26	12	10.1			14.8		-	yes
4	6	27/02/24											100	100	97	76	21	11	8.9			3.0		-	yes
5	7	07/03/24											100	100	97	81	20	7	5.4			13.4		-	yes
6	11	03/04/24											100	99	97	85	26	13	10.4			12.4		-	yes
Target														100	98	90	31	11	9.0						
Specified min												100	98	95	78	55	6		4.0						
Control limit min																									
Control limit max																									
Specified max												100	100	100	100	100	56		14.0						
Average													100.0	99.8	97.5	81.0	23.3	11.3	9.3			11.3			
Standard Deviation														0.4	0.5	4.0	3.8	2.4	2.1			4.2			
Minimum Value													100	99	97	76	19	7	5.4			3.0			
Maximum Value													100	100	98	86	28	14	11.6			14.8			

Loc. Date:18/06/2024 Sgn.:Duncan Hilton

Aggregate Property Data

Region	Tarmac a CRH company – South East
Quarry	**Sevenoaks Quarry** • Bat and Ball Rd • Sevenoaks • TN14 5SR
Petrographic Summary Fine	Chiefly QUARTZ, with minor glauconite and ironstone

Test Property	Unit	0/2mm Dry Screened Sand S115143	0/2mm Washed Sand S115143
Mean Loose Bulk Density:	Mg/m^3	1.23	1.51
Mean Compacted Bulk Density:	Mg/m^3	1.39	1.64
Particle Density (Oven Dry):	Mg/m^3	2.60	2.58
Particle Density (S.S.D):	Mg/m^3	2.61	2.61
Apparent Particle Density:	Mg/m^3	2.62	2.65
Water Absorption:	% WA	0.2	0.9
Percentage Voids Loose:	%	53	41
Percentage Voids Compacted:	%	47	36

For further information, Please contact: -

For Technical: Duncan.Hilton@Tarmac.com
For Commercial: SouthEastSales@Tarmac.com

Aggregate Property Data

Test Property	Unit	0/2mm Dry Screened Sand S106570	0/2mm Washed Sand S106570
Water Soluble Chloride EN1744 Clause 7 (C)	% Cl by mass	0.001	0.001
Water Soluble Sulfate EN1744 Clause 10	mg SO_4 /litre		<50
	% SO_3		<0.01
Total Sulphur EN1744 Clause 11 (TS)	% S by mass	<0.1	<0.1
Sulfide Content EN1744 Clause 13	% SO_4		0.03
Acid Soluble Sulfate EN1744 Clause 12 (AS)	%SO_3 by mass	<0.1	<0.1
Acid Soluble Mat. (5mm-600µm)	%		1.0
Acid Soluble Mat. (Passing 600µm)	%		2.0
Drying Shrinkage	%		0.028
Methylene Blue Value (MB)	Value	4.7	0.5
PH	Value	7.6	7.4
Calcium Carbonate EN196-21	% CO_2 by mass	0.64	0.54
	% $CaCO_3$ by mass	1.45	1.23

Issue Date:	10th January 2024
Issued By:	Duncan Hilton
Position:	Technical Systems Manager

UKAS certification available upon request

For further information, Please contact: -

For Technical: Duncan.Hilton@Tarmac.com
For Commercial: SouthEastSales@Tarmac.com

Appendix S
Selection of Delivery Notes.

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JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: JRLSILVPO

SILVERTOWN - PRODUCT OUT
JRL ENVIRONMENTAL
KNIGHTS ROAD
SILVERTOWN

Waste Code:

Issued By:

Ticket No: 1100325065

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: KX18WUM

Driver: FLORIN BODAN

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 15951

Site Name: SILVERTOWN - PRODUCT OUT

Date: 30/11/2022

Time on Site:

Time off Site:

Customer Order Ref:

Product: OVERSIZED CRUSHED/ NO FINES

OVERSIZED CRUSHED/ NO FINES

EWC:

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - HANSDAG

HANSON AGGREGATES DAGENHAM
Dagenham Wharf
Dagenham Dock Road
Chequers Lane
RM9 6QD

Waste Code:

Issued By:

Ticket No: 1100327682

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GD22AYG

Driver: MICHAEL O'CONNOR

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 2088264652

Site Name: HANSON AGGREGATES DAGENHAM

Date: 07/12/2022

Time on Site: 12:45

Time off Site:

Customer Order Ref:

Product: MT1L

MOT TYPE 1 LIMESTONE

EWC:

Unit Of Sale: LOAD

Qty: 18.060

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - CAMPL

CAMDEN PLANT
CAMDEN PLANT LTD
LOWER HALL LANE
E4 8JG

Waste Code:

Issued By:

Ticket No: 1100331365

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YXP

Driver: Daniel Dalton

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 21476

Site Name: CAMDEN PLANT

Date: 19/12/2022

Time on Site: 12:26

Time off Site:

Customer Order Ref:

Product: 850

6F5 CRUSHED CONCRETE

EWC:

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: JRLSILVPO

SILVERTOWN - PRODUCT OUT
JRL ENVIRONMENTAL
KNIGHTS ROAD
SILVERTOWN

Waste Code:

Issued By:

Ticket No: 1100397956

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YXR

Driver: STANCHO KALPAKCHIEV

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 21279

Site Name: SILVERTOWN - PRODUCT OUT

Date: 13/09/2023

Time on Site:

Time off Site:

Customer Order Ref:

Product: TYPE 1 CRUSHED CONCRETE

TYPE 1 CRUSHED CONCRETE

EWC:

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: JRLSILVPO

SILVERTOWN - PRODUCT OUT
JRL ENVIRONMENTAL
KNIGHTS ROAD
SILVERTOWN

Waste Code:

Issued By:

Ticket No: 1100398955

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GD23MHO

Driver: Dumitru Minalache

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 18925

Site Name: SILVERTOWN - PRODUCT OUT

Date: 13/09/2023

Time on Site: 09:16

Time off Site:

Customer Order Ref:

Product: 6F4 CRUSHED CONCRETE

6F4 CRUSHED CONCRETE

EWC:

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: JRLSILVPO

SILVERTOWN - PRODUCT OUT
JRL ENVIRONMENTAL
KNIGHTS ROAD
SILVERTOWN

Waste Code:

Issued By:

Ticket No: 1100400200

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GD23MKK

Driver: Kevin Condon

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 44960

Site Name: SILVERTOWN - PRODUCT OUT

Date: 19/09/2023

Time on Site: 09:21

Time off Site:

Customer Order Ref:

Product: 6C

6C STONE

EWC:

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: JRLSILVPO

SILVERTOWN - PRODUCT OUT
JRL ENVIRONMENTAL
KNIGHTS ROAD
SILVERTOWN

Waste Code:

Issued By:

Ticket No: 1100416753

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YVP

Driver: ANDREW PERKINS

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 23848

Site Name: SILVERTOWN - PRODUCT OUT

Date: 21/11/2023

Time on Site: 11:09

Time off Site:

Customer Order Ref:

Product: 850

6F5 CRUSHED CONCRETE

EWC:

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: JRLSILVPO

SILVERTOWN - PRODUCT OUT
JRL ENVIRONMENTAL
KNIGHTS ROAD
SILVERTOWN

Waste Code:

Issued By:

Ticket No: 1100449674

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN20YHU

Driver: JOHN DALTON

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 55604

Site Name: SILVERTOWN - PRODUCT OUT

Date: 04/06/2024

Time on Site:

Time off Site:

Customer Order Ref:

Product: 900

6N MATERIAL

EWC:

Unit Of Sale: LOAD

Qty: 1.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - HANSDAG

HANSON AGGREGATES DAGENHAM
Dagenham Wharf
Dagenham Dock Road
Chequers Lane
RM9 6QD

Waste Code:

Issued By:

Ticket No: 1100464558

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YWJ

Driver: CLAUDIU BOLOCAN

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 664636

Site Name: HANSON AGGREGATES DAGENHAM

Date: 11/09/2024

Time on Site: 10:17

Time off Site:

Customer Order Ref:

Product: MT1C

MOT TYPE 1 CRUSHED CONCRETE

EWC:

Unit Of Sale: LOAD

Qty: 17.760

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: JRLSILVPO

SILVERTOWN - PRODUCT OUT
JRL ENVIRONMENTAL
KNIGHTS ROAD
SILVERTOWN

Waste Code:

Issued By:

Ticket No: 1100466187

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YWK

Driver: Owayne Mitchell

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 46208

Site Name: SILVERTOWN - PRODUCT OUT

Date: 20/09/2024

Time on Site: 11:41

Time off Site:

Customer Order Ref:

Product: RECYCLED TYPE 1 CONCRETE

RECYCLED TYPE 1 CONCRETE

EWC:

Unit Of Sale: LOAD

Qty: 18.500

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - HANSDAG

HANSON AGGREGATES DAGENHAM
Dagenham Wharf
Dagenham Dock Road
Chequers Lane
RM9 6QD

Waste Code:

Issued By:

Ticket No: 1100466990

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GD22AYJ

Driver: MICHAEL SOUTHION

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 2091583045

Site Name: HANSON AGGREGATES DAGENHAM

Date: 25/09/2024

Time on Site: 14:22

Time off Site:

Customer Order Ref:

Product: 0/4MM MARINE SHARP WASHED SAND

0/4mm Marine Sharp Washed Sand

EWC:

Unit Of Sale: LOAD

Qty: 18.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - SRC-WEMBLEY

Src Wembley Great Central Way
Great Central Way
NW10 0UZ

Waste Code:

Issued By:

Ticket No: 1100469593

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YVO

Driver: ANDREW PERKINS

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 45764

Site Name: Src Wembley Great Central Way

Date: 10/10/2024

Time on Site:

Time off Site:

Customer Order Ref:

Product: MT1C

MOT TYPE 1 CRUSHED CONCRETE

EWC:

Unit Of Sale: LOAD

Qty: 17.880

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - HSVYEROUT

H Sivyers Mordern Wharf, Tunnel Ave, London, SE10 0PA
Mordern Wharf, Tunnel Ave
SE10 0PA

Waste Code:

Issued By:

Ticket No: 1100471695

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN72ZMX

Driver: TOM DALTON

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 657894

Site Name: H Sivyers Mordern Wharf, Tunnel Ave, London, SE10 0PA

Date: 16/10/2024

Time on Site:

Time off Site:

Customer Order Ref:

Product: RS

REJECT SAND

EWC:

Unit Of Sale: LOAD

Qty: 20.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - SRC-SHEEPSCOATE

SRC - SHEEPSCOATE
BRIANTREE ROAD
LITTLE WALTHAM
CM3 3LD

Waste Code:

Issued By:

Ticket No: 1100471712

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN22YXS

Driver: JOE CHAHID

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 50575

Site Name: SRC - SHEEPSCOATE

Date: 23/10/2024

Time on Site: 11:46

Time off Site:

Customer Order Ref:

Product: BS

BUILDING SAND

EWC:

Unit Of Sale: LOAD

Qty: 18.780

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - HSIVYEROUTHERRINGHAM

H.Sivyer, 3 Herringham Rd, London, SE7 8SJ
3 Herringham Rd
SE7 8SJ

Waste Code:

Issued By:

Ticket No: 1100472937

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN72ZMY

Driver: ALEX REILLY

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 657645A

Site Name: H.Sivyer, 3 Herringham Rd, London, SE7 8SJ

Date: 22/10/2024

Time on Site:

Time off Site:

Customer Order Ref:

Product: RS

REJECT SAND

EWC:

Unit Of Sale: LOAD

Qty: 5.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - HSIVYEROUTHERRINGHAM

H.Sivyer, 3 Herringham Rd, London, SE7 8SJ
3 Herringham Rd
SE7 8SJ

Waste Code:

Issued By:

Ticket No: 1100473545

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN72ZMY

Driver: ALEX REILLY

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 661632

Site Name: H.Sivyer, 3 Herringham Rd, London, SE7 8SJ

Date: 25/10/2024

Time on Site:

Time off Site:

Customer Order Ref:

Product: MT1C

MOT TYPE 1 CRUSHED CONCRETE

EWC:

Unit Of Sale: LOAD

Qty: 20.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - HSIVYEROUTHERRINGHAM

H.Sivyer, 3 Herringham Rd, London, SE7 8SJ
3 Herringham Rd
SE7 8SJ

Waste Code:

Issued By:

Ticket No: 1100486843

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN72ZMX

Driver: TOM DALTON

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 36898

Site Name: H.Sivyer, 3 Herringham Rd, London, SE7 8SJ

Date: 19/02/2025

Time on Site:

Time off Site:

Customer Order Ref:

Product: SHARP SAND

SHARP SAND

EWC:

Unit Of Sale: LOAD

Qty: 10.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

JRL ENVIRONMENTAL

COMBINED CONVEYANCE NOTE
& WASTE TRANSFER NOTE

Outlet Details: 001 - HSVYEROUT

H Sivyers Mordern Wharf, Tunnel Ave, London, SE10 0PA
Mordern Wharf, Tunnel Ave
SE10 0PA

Waste Code:

Issued By:

Ticket No: 1100487456

Customer Account: JRL001

J REDDINGTON LTD

Tip / Origin Address: 1219

20A00101 - FERRY ISLAND
FERRY ISLAND
TOTTENHAM HALE
STATION ROAD
N17 9FR

SIC Code: 43.12

SITE PREPARATION

Vehicle Reg: GN72ZMX

Driver: TOM DALTON

Haulier: JRL002

JRL ENVIRONMENTAL LIMITED
4 ELSTREE WAY
BOREHAMWOOD
WD6 1RN

Waste Carrier ID: CBDU569104

Incoming Ref No: 36900

Site Name: H Sivyers Mordern Wharf, Tunnel Ave, London, SE10 0PA

Date: 25/02/2025

Time on Site: 07:38

Time off Site:

Customer Order Ref:

Product: MT1C

MOT TYPE 1 CRUSHED CONCRETE

EWC:

Unit Of Sale: LOAD

Qty: 10.000

Company Details:

JRL Environmental Ltd 4 Elstree Way
Borehamwood, Hertfordshire
WD6 1RN

Tel: 020 8953 7800

The waste hierachy has been considered deciding the most appropriate waste management option.

Appendix T
Water Supply Pipe Connection Plan.

© Terragen Environmental Consultants 2026

SITE LOCATION: Ferry Island, Tottenham Hale, N17 9FR			
DS Reference:	DS6053957	Service pipe material:	Barrier Pipe
Order number:	80794304	Designer:	R.Bhuju
Co-ordinates:	X: 534339.73 Y: 189514.74	Date:	27/10/2019

Single connection
2 port Manifold
4 port Manifold
6 port Manifold
Revenue meter
Valve

Thames Water Point of Entry Plan - Not To Scale

Plot(s) and Connection Objects (CO)

Plots 13-14: 2x32mm Barrier pipe metered supplies in shared trench
Cos:
Commercial
Connection in The Hale

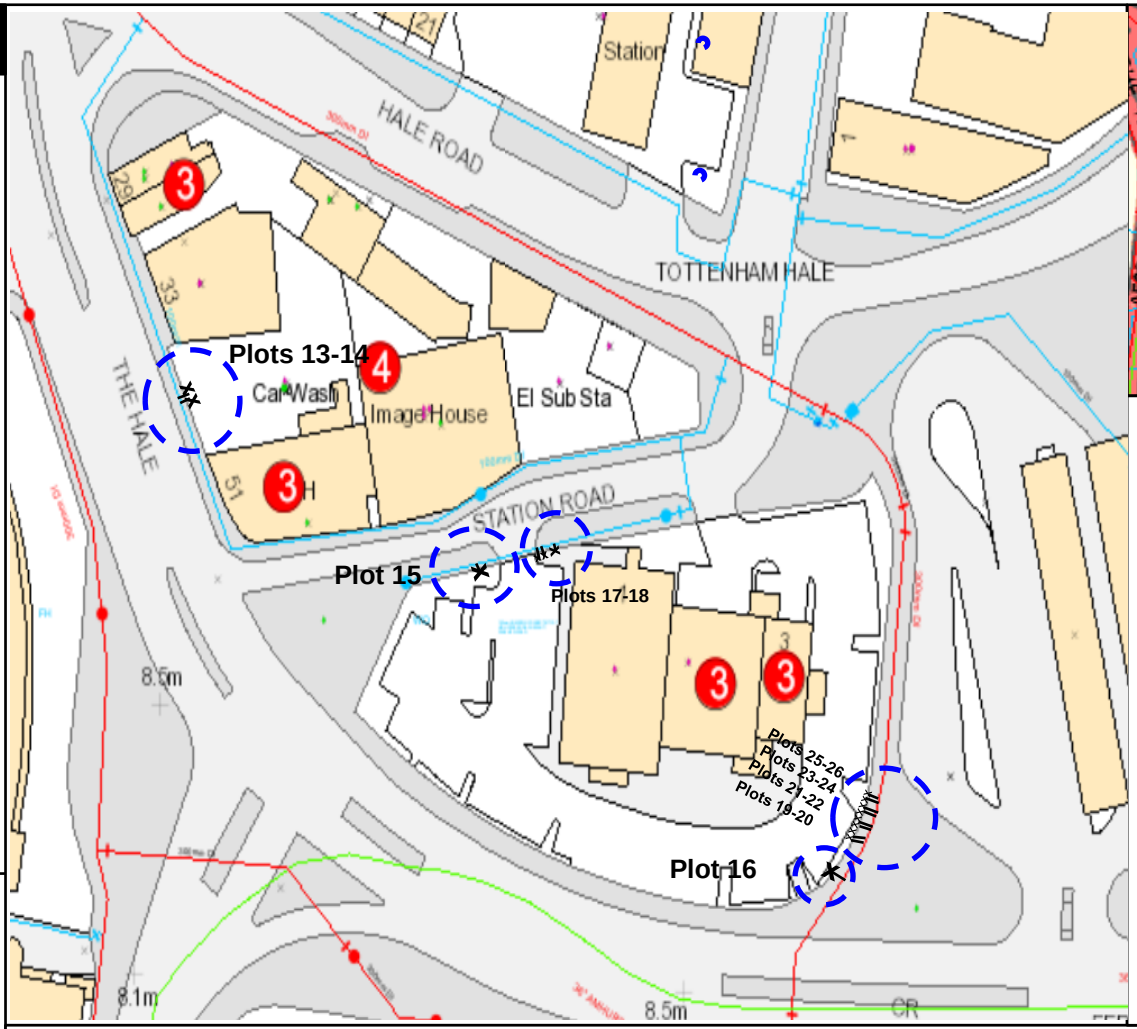
Plot 15 (building 2): 1x90mm Barrier pipe Non revenue metred supply(107 Flats)
Connection in Station Road

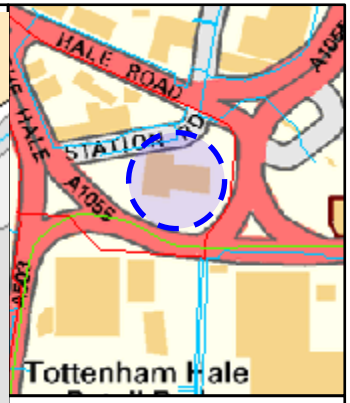
Plots 17-18: 2x32mm Barrier pipe metered supplies in shared trench
Cos:
Commercial
Connection in Station Road

Plot 16 (building 1): 1x125mm Barrier pipe Non revenue metred supply(375 Flats)
Cos:
Connection in Ferry Lane

Plots 19-26:8x32mm Barrier pipe metered supplies(4x shared trenches) commercial
Cos:
Connection in Ferry Lane

Please sign to confirm location of connections. Please ensure that you have a copy of this plan when you are booking your water regulations and on site during the inspections. This will enable us to confirm with you the correct plot to be inspected.





Note: The position of the apparatus shown on this plan is believed to be correct at time of issuing this drawing. Thames Water accepts no responsibility in the event of any inaccuracy. The actual position of our apparatus, including existing service pipes which are not displayed on this plan must be established on site.

The proposed point of entry for the new service connections maybe subject to deviation due to unforeseen obstructions. Any variation from the designed position of the new water service connections may incur additional charges.

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Signature …….. Print Name…….....Date…..……

Appendix U
Water Supply Pipes Delivery Notes.

© Terragen Environmental Consultants 2026

Quotation
291155 WD

Scott Parnell Ltd.

Quotation Date :	24/7/2024	Originator :	Luke Hayes
Planned Delivery :		Our Ref :	Luke Hayes
Quotation Valid until :	31/7/2024	Delivery :	To Be Routed

Tel : 01376 502676 Fax : 01376 500272

Page : 1/1

Customer No. 304

Invoice Address

J Reddington Ltd
4 Elstree Way
Borehamwood
Herdfordshire
WD6 1RN

Delivery Address

J Reddington Ltd
Ferry Island
Tottenham Hale, Station Rd
Tottenham
London
N17 9FR

Customer Phone	Customer Fax	Customer Reference
0208 953 7800	0208 9536542	Jamie

Item	Qty	Unit	Description	Price	Disc%	Total £
NS	384	LM	63mm BLUE PE80 SDR11 (12.5 BAR) PROTECTALINE ALUMINIUM LINED BARRIER PIPE IN 6m	28.28		10,859.52
NS	8	EA	63mm BARRIER PIPE 90° ELBOW TO BS8588 KIWA UK WATER REG 4 APPROVED	34.34		274.72
NS	8	EA	63mm BARRIER PIPE 45° ELBOW TO BS8588 KIWA UK WATER REG 4 APPROVED	34.86		278.88
			*** SITE TO OFFLOAD ***			
			3-5 WORKING DAYS			

Comments :

Net:	11,413.12
VAT:	2,282.62
TO PAY: £	13,695.74

Payment Terms : 60 Days (EOM)

Purchase Order

Supplier Address

FRASER & ELLIS LIMITED
FRASER & ELLIS LIMITED
UNIT I&J
LONDON STONE BUSINESS ESTATE
BROUGHTON STREET
SW8 3QR

Order Date	Type	Order Number	Variation No
17/07/24	N	**HM-26T00101/000031**	

All documentation must quote this number

Placed by

Buyer **Lucas Wagstaff** Tel 0208 953 7800

Email david.cordwell@jreddington.co.uk

Supplier Details

Contact

Special Instructions

Item No.	Commodity Code	Description	Quantity	Price	Per	Disc %	Amount
1	M477-0005	MDPE32/50P * 32mm x 50m Puriton II Barrier Pipe	9.000	468.31	EA	0.00	4,214.79
2	M477-0005	32P301P * 32mm Barrier Pipe Coupling	5.000	11.52	EA	0.00	57.60
3	M477-0005	32P401P * 32mm Barrier Pipe 90° Elbow	10.000	12.82	EA	0.00	128.20

Terms: 60 Days End of Month

4,400.59

Delivery Address

Ferry Island [Fixed Price Temps for MID]
ARK M&E FACTORY
4 MANOR WAY
BOREHAMWOOD
07557 117 046
WD6 1QB

Due Date: 18/07/24

Requested By: PETER COLLERAN

Requisition Number: 7

Committed By: jamie.woods

Authorised Signature

Our Order is placed in line with our standard terms and conditions; a copy is available upon request

Ark Mechanical and Electrical Services Ltd 4 Elstree Way Borehamwood Hertfordshire WD6 1RN
www.jrlgroup.co.uk Telephone: 020 8953 7800 Fax: 020 8953 7774
VAT No: 332653317 Company Reg No: 8441858

Appendix V
Developer Declaration.

© Terragen Environmental Consultants 2026

4 Elstree Way, Borehamwood
WD6 1RN
+44 (0) 208 953 7800
info@jrlgroup.co.uk

28/01/26

To Whom It May Concern,

RE: Discovery Strategy Implementation and Absence of Unexpected Contamination

We confirm that the discovery strategy agreed for the project at Ferry Island was fully implemented in accordance with the relevant procedures and regulatory requirements.

We further confirm that during the course of these works, no unexpected contamination was encountered.

Should you require any further information, please do not hesitate to contact us.

Yours faithfully,



Laura Cabeza Escobar
Environmental Manager

For and on behalf of JRL Group