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Declaration

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I have reviewed the document described in the Document Details section, in relation to the project and site described in the Site Details section, and I am satisfied that:

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2. That the assessment carried out is, to the best of my knowledge, undertaken with reasonable skill and care, and the information and data reported:
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 - ii. accord with relevant good practice guidance and standards and
 - iii. are based upon appropriately robust science and
 - iv. are factually correct and
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3. That all specialist aspects have been reviewed by an appropriately qualified/competent person with relevant skills and experience in that specialist area.
4. That the interpretation and conclusions are reasonable.
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Signed:

Date: 12/06/2026

Name: Philip Harrison
[Block capitals]



0626-K1589



NGET ARRIVA BUS DEPOT TOTTENHAM (SITE CODE 8021)

Notice

This document and its contents have been prepared and are intended solely as information for National Grid Electricity Transmission (NGET) and National Grid Electricity Transmission plc (NGET) for use in relation to the Verification of the Phase 1 remediation works at the NGET Tottenham Former Bus Depot located off Leaside Road, Tottenham, London, N17 0SG (herein referred to as ‘the site’).

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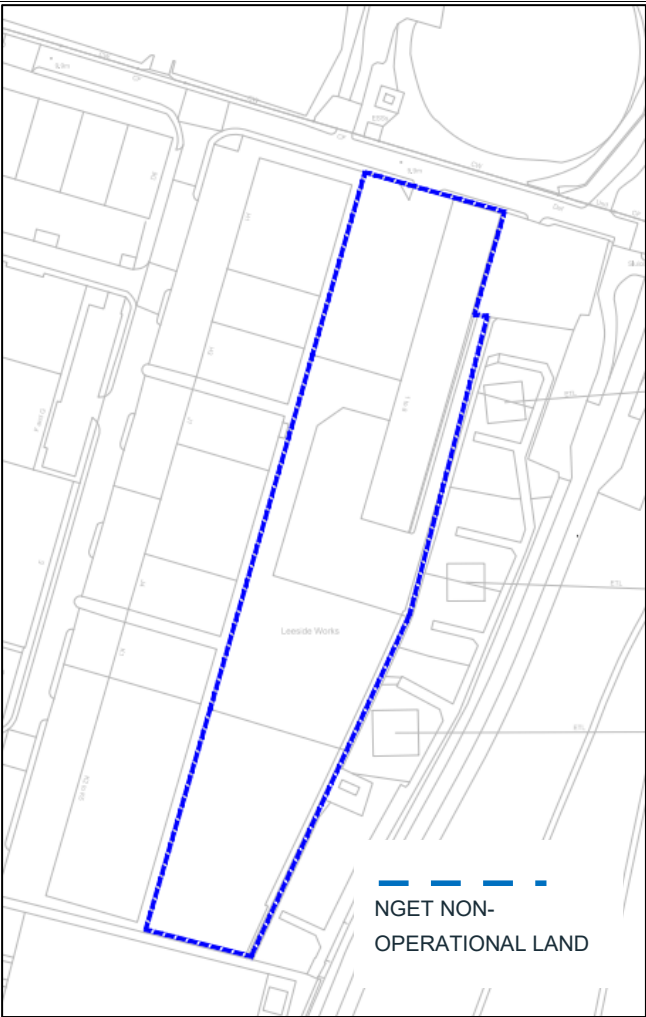
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Client signoff

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Access Permitted	NGET Land Regeneration Team	NGET Contact	LRM: Gareth Taylor LRA: Matthew Lush



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1. Introduction

1.1 General

AtkinsRéalis UK Limited (AtkinsRéalis) has been commissioned by National Grid Electricity Transmission (NGET), to produce a Verification Report following Phase 1 Remediation works at the Former Bus Depot, located off Leaside Road, Tottenham, N17 0SG (herein referred to as 'the site').

This document only considers the remediation completed within Phase 1 as has been specified within the Remediation Detailed Design [1] prepared for the site by AtkinsRéalis.

To support the wider North London Reinforcement Project (NLRP), the site will be redeveloped to facilitate an upgrade to the adjacent NGET owned substation to the east and south. Remediation of the site was required to enable the development works and to ensure suitability for use as an operational substation site.

The remediation was split into two phases at the outset [2] as detailed below:

- Phase 1: Development led remediation works. The remediation was designed around the development works associated with underground cables in the north-east of the site, comprising shallow excavation works and non-aqueous phase liquid (NAPL) removal, where encountered. It was also recognised that the works would have a consequential benefit of reducing contaminant load on the aquifer from contaminants in the north of the site, providing a degree of mitigation to controlled waters.
- Phase 2. Remediation to mitigate risks to controlled waters across the site. Remediation is to be designed to mitigate gross contamination risks across the site that are deemed to be unacceptable to controlled waters receptors.

Pilot trials and the subsequent Phase 2 remediation will focus on areas that require mitigation outside of the Phase 1 remediation area.

This report has been based on the Environment Agency's Land Contamination Risk Management (LCRM) [3] guidance.

1.2 Background and objective

This Verification Report has been produced by AtkinsRéalis for the Phase 1 remediation and is to be submitted to the Local Planning Authority (London Borough of Haringey) on behalf of NGET, as part of the DCO submission (Requirement 11 (3) for Phase 1).

The objective of this report is to provide a complete record of all Phase 1 remediation activities on site and the data collected to support compliance with agreed remediation objectives and criteria. The Phase 1 remediation scope was designed to mitigate the risks to the development, specifically the underground cables in the north-east of the site and risks to controlled waters in the vicinity of the development footprints. It comprised shallow excavation works and non-aqueous phase liquid (NAPL) recovery, where encountered.

The development led Phase 1 remediation commenced in January 2025 but was paused in March 2025 due to design challenges with the overall proposed cable development. Other proposed development solutions were being developed by NGET, which included the construction of a pylon.



The excavation of this footprint was incorporated into the remediation and works were continued until June 2025. More information on the status of the Phase 1 remediation is detailed in the Remediation Status Technical Note for the site [4], included in Appendix K alongside the regulatory approval.

This Verification Report includes details of the final strategy, works undertaken (including volumes disposed), third-party approvals, verification, quality assessment, monitoring, final site conditions, wayleaves, warranties and contact details of involved parties/consultees, tip locations, excavation profiles, copies of waste transfer documents and health and safety information.

Information related to the previous site investigations is summarised in the below reports which should be consulted for full details:

- Atkins, NGET Arriva Bus Depot, Tottenham (8021). Factual Site Investigation Report. 2023 [5];
- Atkins, NGET Arriva Bus Depot, Tottenham (8021). Interpretative Site Investigation Report. 2023 [6];
- Atkins, NGET Arriva Bus Depot, Tottenham (8021). Controlled Waters Detailed Quantitative Risk Assessment. 2024 [7]; and
- AtkinsRéalisis, NGET Former Bus Depot, Tottenham (8021). Outline Remediation Strategy. 2024 [2];
- AtkinsRéalisis, NGET Former Bus Depot, Tottenham (8021) Detailed Remediation Design 2024 [1]; and
- AtkinsRéalisis, NGET Former Bus Depot, Tottenham: Technical Note 2026 [4]

1.3 Key personnel

A summary of the key parties involved in the remediation project are summarised in the Table 1-1 below.

Table 1-1 – Key personnel

Company	Role	Contact
National Grid Property Holdings Ltd (NGET) National Grid House, Warwick Technology Park, Warwick, CV34 6DA	Client	Gareth Taylor Matthew Lush
AtkinsRéalisis Ltd (AtkinsRéalisis) 3rd Floor, Nova North, 11 Bressenden Place, Westminster, London, SW1E 5BY	NEC Project Manager and Principal Designer NEC Supervisor	Lauren Ilyas Zita Czinke
Erith Contractors Ltd Erith House, Queen Street, Erith, Kent, DA8 1RP	Principal Contractor	James Hardy
Mace 155 Moorgate, London, EC2M 6XB, United Kingdom	CDM Advisor	Nick James
AECOM 3rd Floor, International House, Dover Place, Ashford, Kent, TN23 1HU	Clients Cost Consultant	Lauren Bradley



Company	Role	Contact
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Eurofins Chemtest 11 Depot Road, Newmarket, CB8 0AL	Chemical Laboratory (Erith and AtkinsRéal Sub-contractor)	Imogen Carr
Construction Testing Solutions Unit 8 & 9, Bootham Lane Industrial Estate, Dunscroft, Doncaster, DN7 4JU	Geotechnical Laboratory (Erith Sub-contractor)	-

1.4 Report limitations

This report is prepared and written in the context of an 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 re-interpretation of the report in whole or in part after its original submission.

This report includes third party information. This data has been assumed to be correct for the purposes of this assessment. AtkinsRéal does not accept responsibility for inaccuracies in the data supplied by any other party.

This report has been made on the basis of the current ground conditions and the current information provided on the development design. Changes to the ground conditions and development design could result in further assessments being required. NGET has provided information about the proposed development that AtkinsRéal has used to design the remediation scheme. AtkinsRéal does not take any responsibility for any inaccuracies in the information that NGET has provided.

This report has been produced in accordance with relevant guidance currently accepted as good practice/industry standard.

Potential future impacts or changes to the environment due to climate change were outside the scope of the remediation strategy and risk assessments and therefore are not considered in the verification report. This report has been based on information and data provided by the Principal Contractor, Erith Contractors Ltd, and by observations and information recorded by AtkinsRéal.



2. Site setting

The site setting is detailed below in Table 2-1.

Table 2-1 – Site setting and information

Information	Description
Site details	Site Address: NGET Arriva Bus Depot, Leaside Road, N17 0SG Site access is from Leaside Road in the north of the site. Ordnance Survey (OS) Grid Reference: 535413E, 191516N. A site location plan is provided as Figure 1, included in Appendix A.
Site description	The site is roughly rectangular and covers an area of approximately 1.2 hectares (ha). It has formerly been utilised as a bus depot and leased to a building and plumbing merchants, a steel fabricator and a storage and haulage yard. The site is currently vacant and all former buildings and structures have been demolished.
Site ownership and boundaries	The site is owned by NGET.
Adjoining and nearby land uses	North: Former gas holder site, currently active construction site for a multi-storey building. East: NGET owned substation infrastructure and the Pymmes Brook surface water course located 30 m east; South: NGET Tottenham Substation; and West: Mowlem Trading Estate (various commercial and industrial uses).
Site topography	The site is largely flat, with small, localised depressions, and is located at approximately 10 m Above Ordnance Datum (AOD).
Ground cover and description	The site is covered by concrete, asphalt hardstanding, and engineered fill in remediation footprints and trial trench locations. A narrow soft landscaping area is present along the eastern boundary, with fly tipped materials.
Services	A composite drawing that presents information from service providers that have assets on, or in the near vicinity of the site is included in the Atkins 2023 Factual Site Investigation Report [8]. The BT telecommunications, Virgin Media, UK Power Networks (low voltage) services were disconnected as part of the demolition phase of works in May and June 2024. As part of these works, the gas main was confirmed to have been disconnected by the supplier previously. The following services are understood to be located on-site: ▪ A surface drain entering from Leaside Road crossing the site in a north-east to south-west alignment before exiting the site at the eastern boundary. ▪ The water remains live.
Published geology	Made Ground was encountered to a maximum depth of 6.0 m below ground level (bgl). This was underlain by superficial deposits of Alluvium



Information	Description
	to a maximum depth of 5.85 m bgl and River Terrace Deposits (RTD), namely the Kempton Park Gravels (KPGR), to a maximum depth of 7.8 m bgl. Alluvium was not found within the footprints of the anticipated southern and central infilled ponds (noting the central pond was labelled as a 'sludge pit'). London Clay Formation bedrock was encountered at the site from approximately 6.5 m bgl to 8 m bgl and comprised soft to stiff greyish brown fissured clay.
Site history	The site has undergone multiple phases of development, with the most recent use by several active commercial units housed within a two-storey, rectangular, brick building, with steel cladding exterior and an adjacent concrete/tarmac storage yard. The southern third of the site was used for the storage/parking of empty waste skips, vehicles, trailers and storage of tonne-bags of aggregates. The majority of the northern two-thirds of the main building and two-yard areas were sub-leased to a builder's merchants. The yard areas were used for materials storage and parking. The southern third of the building and some adjacent yard space was sub-let to Lomas Steel Structures Limited for metal fabrication. Historically the site had been used as a bus depot and an engineering works. Two ponds were present in the centre and south of the site, that were understood to have been infilled. The central pond was labelled as a sludge pit prior to infilling. The surrounding area to the site has undergone multiple phases of industrial development including a gasworks, depot and chemical works.
Hydrogeology	The Environment Agency aquifer classification for the underlying strata is outlined below: ▪ Superficial (Alluvium): Secondary Undifferentiated Aquifer; ▪ Superficial: (Kempton Park Gravel): Secondary A Aquifer ▪ Bedrock: (London Clay Formation): Unproductive Strata ▪ Bedrock: (Lambeth Group, Thanet Sand): Secondary A Aquifer Recorded groundwater levels in the Made Ground (where Alluvium is present beneath the Made Ground) ranged between 0.74 m bgl (9.84 m AOD), in the southern portion of the site, and 1.94 m (8.61 mOD), in the centre of the site. It is expected that groundwater in the Made Ground is continuous. Recorded groundwater levels in the Kempton Park Gravel ranged between 2.56 m bgl (7.59 m AOD) in the north of the site, and 4.27 m bgl (6.26 m AOD) to the south-east of the site. The factual site investigation report [5] indicates that the site is located within an Outer Catchment (Zone 2) Source Protection Zone (SPZ), a groundwater abstraction license is active 320 m west of the site. Areas classified as Inner Zone SPZ1 are present to the north, east and south of the site.

Information	Description
Hydrology	The closest surface water feature to the site is the Pymmes Brook located approximately 30 m east of the site parallel to the eastern site boundary. The Brook flows from the north-north-east to south-west direction. The River Lea Navigation Canal is located 230 m east of the site and the River Lea is located approximately 250 m east of the site. Other water features include the Banbury Reservoir located approximately 360 m east of the site and the Lockwood Reservoir located approximately 530 m south of the site. It is understood that the Lee River Reservoir Chain are primarily fed by surface waters, including the Pymmes Brook, River Lee Diversion and River Lee Flood Relief Channel. There are no reported licensed surface water abstractions within 1 km of the site.
Previous Investigations	A number of phases of investigation have been carried out at the site by AtkinsRéalis and previous consultants. Information can be found in the following reports. These reports should be sought for full details: • WorleyParsons. Geotechnical and Environmental Assessment Site Investigation Factual Report. Proposed Cable Route, Tottenham, 1 August 2013. Ref: 305008-00018 51603-00 [8, p. 27], [9]; • WorleyParsons. Environmental Assessment, Factual Site Investigation, Arriva Bus Depot, Tottenham, April 2013. Ref 51576-00 [10]; and • Atkins, NGET Arriva Bus Depot Factual Site Investigation Report, 2023 [5]. These investigations formed the basis of the Phase 1 remediation design. It is acknowledged that an additional phase of investigation was carried out at the site by AtkinsRéalis in 2024, to inform the Phase 2 remediation. An interpretative report, DQRA and NAPL assessment, and Remediation Options Appraisal have since been produced to inform the Phase 2 design. The data from these reports is not detailed herein.

3. Phase 1 conceptual site model

3.1 Remediation CSM

Land contamination is evaluated through the identification and assessment of Potential Contaminant Linkages (PCLs) denoting where plausible source-pathway-receptor relationships have been identified and a potential risk to the receptor is present.

The approach adopted involves the development of a Conceptual Site Model (CSM) to describe sources of contamination, potential migration/exposure pathways and potential receptors that may exist at the site and subsequently identified PCLs.

Several environmental assessments including site investigation reports and a DQRA have previously been produced for the site. The 2023 interpretative site investigation and risk assessment reports [7] [5] present a refined CSM that combines historical data with that from investigations completed in 2023. The PCLs that are relevant to the remediation strategy pathways have been summarised within this section in accordance with guidance provided in LCRM [11].

The remediation strategy considered the future end use of the site as an operational substation comprising a cable sealing end compound constructed in the north-east of the site. A proposed pylon was later incorporated into the design, and the footprint was remediated in line with the principles of the remediation strategy [2] and detailed design [1]. The site end use is consistent with a commercial end use. It is understood that the site will be unoccupied under the proposed end use, with occasional visitors from operational and maintenance workers. Areas of soft landscaping are not included in the proposed development.

DNAPL has been recorded at the site over the historical and 2023 investigations. LNAPL is also presumed to be present.

3.2 Potential contaminant linkages

As noted in Section 1, the objectives of the Phase 1 remediation were principally development-led, with a consequential betterment of site conditions. The CSM in Table 3-1 identifies all PCLs; however, only a subset of these were addressed during Phase 1 works. The remaining PCLs, which were not addressed during Phase 1, will be addressed as part of Phase 2. These predominantly relate to deeper contamination and areas located outside the Phase 1 remediation footprint.

Table 3-1 presents a summary of the CSM, identifying all PCLs and indicating whether they have been addressed in Phase 1 or are to be addressed in Phase 2.



Table 3-1 – Remedial conceptual site model

Source and Area/Structure	Critical Receptors	Pathway	Potential Consequence of Complete Contaminant Linkage	Likelihood of Complete Contaminant Linkage	Risk	Detail
Asbestos in shallow soils.	Existing site users	Dust/fibre inhalation	Severe	Unlikely	Moderate Risk	To be partially addressed by the Phase 1 remediation, if located in excavation areas.
	On-site workers in excavations	Dust/fibre inhalation	Severe	Unlikely	Moderate Risk	
Hydrocarbon impacted Made Ground and Alluvium across the site	Surface water and downgradient groundwater in the Secondary A Aquifer	Leaching/dissolution from contaminated soil followed by migration in groundwater;	Moderate	Likely	Moderate Risk	To be partially addressed by the Phase 1 remediation, if located in excavation areas.
		Leaching / dissolution of NAPL followed by migration in groundwater	Moderate	Likely	Moderate Risk	
		Soil erosion/surface flooding resulting in discharge of contaminants to surface water	Moderate	Unlikely	Low Risk	
Impacted groundwater within the KPGR across the wider site.	Off-site workers to the west and south of the site	Inhalation of vapours	Moderate	Likely	Moderate Risk	Benefits by the Phase 1 remediation but mitigated as part of the



Source and Area/Structure	Critical Receptors	Pathway	Potential Consequence of Complete Contaminant Linkage	Likelihood of Complete Contaminant Linkage	Risk	Detail
	Surface water and downgradient groundwater in the Secondary A Aquifer	Migration in groundwater	Moderate	Likely	Moderate Risk	Phase 2 remediation through betterment.
Ammonium impacted groundwater at the site.	Surface water and downgradient groundwater in the Secondary A Aquifer	Migration in groundwater	Moderate	Likely	Moderate Risk	Benefits by the Phase 1 remediation but wider remedial action discounted in the Remediation Detailed Design [1].
Dense non-aqueous phase liquid (DNAPL) at the base of the KPGR in the centre and south of the wider site.	Off-site workers to the west and south of the site	Inhalation of vapours	Moderate	Likely	Moderate Risk	To be addressed during the Phase 2 remediation.
	Surface water and downgradient groundwater in the Secondary A Aquifer	Leaching / dissolution of NAPL followed by migration in groundwater	Moderate	Likely	Moderate Risk	
		NAPL migration and discharge to surface water	Moderate	Likely	Moderate Risk	



3.3 Summary of human health PCLs

Table 3-1 shows that the human health PCLs are related to the potential vapour risk to off-site workers associated with the presence of gross contaminated soils, impacted groundwater and DNAPL, classified as a moderate risk. A moderate risk has also been identified to on-site workers, that relates to an area of exposed soil to the east of the depot building. This will be partially addressed by the Phase 1 remediation. Remaining human health PCLs related to vapours will be targeted by the Phase 2 remediation.

Considering the future use of the site as a substation, specifically an unoccupied non-operational land with a pylon in the south, the ground cover is likely to comprise hardstanding with limited areas of gravel cover. As there are no proposed areas of soft landscaping and any occasional visitors will likely use pedestrian walkways to traverse the site, there is not considered to be a pathway from asbestos or contamination in soils to future site end users. No specific remediation for PCLs related to asbestos are recommended but it should be presumed to be present in shallow soils and the infilled pond areas. This report does not consider risks during construction, where it is expected that the appointed Contractor will manage H&S risks through appropriate workplace controls and risk assessment.

The risk assessment and conceptual site model may require a review should there be any modifications to the proposed development and inclusion of any areas of soft landscaping or soft ground.

3.4 Summary of controlled waters PCLs

As detailed in Table 3-1, risks to controlled waters across the site are considered to be moderate. Hydrocarbon impacted Made Ground and Alluvium in the vicinity of BH12-04, BH23-04 and BH23-05 are to be partially remediated as part of the Phase 1 remediation. In addition, PCLs associated with impacted groundwater within the superficial deposits will be partially addressed by this phase.

The DNAPL identified within the wider site boundary is an ongoing source of contamination. Remaining PCLs associated with this source require mitigation as part of the Phase 2 remediation.

Hydrocarbon impacted Made Ground and Alluvium in the north of the site may also present an unacceptable risk to controlled waters, and may be included within the Phase 2 remediation design, if required.

The Remediation Detailed Design [1] concluded that remedial action that directly targets ammonium at the site was not required as any remediation driven by remedial target values would likely be impractical.



4. Remediation works

4.1 Remediation objectives

The primary technical objectives for both the Phase 1 and Phase 2 remediation are detailed in the AtkinsRéalisation Remediation Strategy [1]. The objectives specific to Phase 1 are as follows:

- to address PCLs identified in Section 3 as far as is reasonably practicable; to allow the excavation of cable corridors and the pylon footprint associated with the proposed development and to render the site suitable for use as an operational substation;
- where encountered, recoverable mobile NAPL beneath the excavation will be addressed as far as is reasonable and practicable, taking into account the time constraints and presence of NAPL beneath the wider site;
- to implement a sustainable remediation scheme, which balances the aspiration to reduce waste and maximise materials re-use against the need to minimise impact on the local community in terms of nuisance, and health and safety, as far as is reasonably practicable in the context of proposed development to render the site suitable for use as an operational substation; and
- re-use of available site-won aggregate to backfill excavations, where deemed to be suitable.

4.2 Remediation rationale

The proposed substation upgrade works comprised a need to excavate a trench across the site so cables and a cable sealing end compound could be installed. The cable trench design requirements are presented in the outline design provided by NGET in Appendix A (Rev 03 dated May 2023, reference: PDD-101786-203722-LAY-201) alongside the cable route section drawings (ref: 23P_00430-JMS-CS-400-DR-Z-0033, Rev P02, dated November 2023). As the cable option is no longer being taken forward by NGET and a pylon design is being developed, excavation of the footprint of the proposed pylon was added to the scope.

The remediation comprised the excavation of a trench with a width of at least 16.4 m to a depth of 1.7 m bgl, terminating over 1 m above the groundwater table. These dimensions were set by the design requirements for the proposed cable route, whilst including the installation of a clay barrier wall. These were agreed by AtkinsRéalisation, NGET, and the main design contractor, and form the basis of the Phase 1 remediation scope. Remediation of the proposed pylon footprint was carried out to the same depth of excavation and design principles.

Although this scope was required to enable the development; there is considered to be a consequential benefit in reducing the contaminant load in the aquifer. The necessary excavation of the cable corridors and pylon footprint, and backfilling with chemical and geotechnically suitable materials are also considered to have provided a degree of mitigation to some of the PCLs to controlled waters. Observations gained during the Phase 1 remediation will provide benefit for the design of the Phase 2 remediation.

The remediation also mitigated, to an extent, unsaturated zone hotspots within the cable trench and pylon footprint as well as in the vicinity, such as the location of a suspected underground oil tank to the east of the centre of the site.

The recommended Phase 1 remediation was therefore to enable the construction of the cable routes and pylon base, whilst providing general site betterment with respect to identified sources of contamination.



4.3 Remediation scope

The Phase 1 remediation was designed to enable the installation of new cable corridors and to provide enablement works for an electricity pylon. The works focused on source removal within the limits of the remediation footprints (and perched groundwater, where encountered). This is set out as follows:

- Breakout and removal of the above ground concrete slab associated with the former building, with processing of material under WRAP Quality Protocol (QP) [12] for re-use on-site. Areas of the slab outside the trench excavation were broken down to the existing surrounding ground level;
- Excavation of trench and pylon footprint to approximately 1.7 m bgl, with localised over excavation to chase out grossly contaminated soils and NAPL, where encountered;
- Excavation and removal of any below ground tanks and / or obstructions and / or pipework that are within the excavation extents, where encountered;
- Excavation comprised battered sides to make safe and clay barrier walls and at base, to seal the sides and base, respectively. Validation samples undertaken from the base and sides of the excavation;
- Trial trenching exercise for waste classification purposes to inform disposal;
- Export of material to an off-site treatment centre as preference, or landfill;
- Removal of perched and shallow groundwater from within excavations. Groundwater and perched water pumped and treated on site, and suitably discharged to the on-site sewer system. Recovery of any free phase hydrocarbon product encountered during excavation works and chase out of any unsaturated zone NAPL encountered;
- Excavations backfilled to match original ground levels utilising chemically suitable site won aggregate in accordance with the WRAP Quality Protocol (QP) [12] (generated from the demolition works – class 6) and imported material (Class 6F5 and 1A); and
- Environmental monitoring (noise, dust, vibration, odours, and asbestos) during the works.

4.4 Remediation timeline

The development led Phase 1 remediation commenced in January 2025 but was paused in March 2025 due to design challenges with the overall proposed cable development. Other proposed development solutions were being developed by NGET, which included the construction of a pylon. The excavation of this footprint was incorporated into the remediation and works were continued until June 2025. The full timeline is summarised in Table 4-1. Archaeological supervision was carried out for the duration of excavation works.

Table 4-1 – Timeline of Remediation Works Completed

Task and detail	Start Date	Finish Date	Weeks No.
Site set up and preparatory work	13 January 2025	17 January 2025	1
Remedial earthworks: Phase 1 footprint	20 January 2025	28 February 2025	2 to 9
Pause in works due to blocked drainage system and standing water within trench.	23 January 2025	5 February 2025	3
Stand down of remedial earthworks to allow third party access for maintenance works.	17 March 2025	7 May 2025	10 to 20



Task and detail	Start Date	Finish Date	Weeks No.
Trial trenching completed by the Remediation Contractor for waste soils classification purposes in remaining Phase 1 footprint.	7 May 2025	23 May 2025	10, 16, 17 and 18
Remedial earthworks: Pylon footprint	26 May 2025	20 June 2025	20 to 23
Final reinstatement and removal of welfare etc.	22 July 2025	26 July 2025	28
Site hand back to National Grid and BNP	11 August 2025	15 August 2025	31

4.5 Pre-mobilisation works

The following pre-mobilisation works were undertaken prior to the commencement of the main works to mitigate identified constraints and facilitate the remediation:

- Local Authority Consent for crushing and screening plant linked to the generation of WRAP material was required and is detailed in Appendix **Error! Reference source not found.**
- A pre-condition survey (including photographs) to establish the conditions of walls, fences, roads and structures surrounding the site prior to and upon completion of the works. The report can be found in 9.Appendix B B.1;
- Site establishment, the installation of welfare facilities, CCTV security system;
- UXO and service clearance, including positive identification of services within the excavation;
- Dust and debris netting installation along the eastern perimeter and external boundaries to prevent nuisance to neighbouring site users;
- Topographical survey to confirm ground levels; and
- Protection of the existing boreholes shown on Figure 1 in Appendix A.

4.6 Licences, notices, and health and safety

The Contractor (Erith) was responsible for discharging their duties under the Construction Design and Management (2015) Regulations, as appointed Principal Contractor. This included the development of a Construction Phase Plan (CPP) included in Appendix B.2 including task specific risk assessments and liaising with other CDM duty holders as detailed in Table 1-1. Various HSE notices are included as Appendix B.4.

Evidence of the applicable licenses and consents can be found in Appendix B.4. The evidence includes the following;

- Environmental Permit and Deployment Form;
- Trade Effluent Discharge Consent;
- F10 licences; and
- WRAP Method Statement.



4.7 Excavation

Excavation was undertaken ensuring material was appropriately segregated and stockpiled on site. The excavation commenced under a watching brief from an archaeologist and an NEC3 supervisor. The NEC3 supervisor determined the completed depth of the excavation based on visual cleanliness of the underlying material. The excavation was divided into a 10 m x 10 m grid for validation sampling, shown in Erith drawing number 13089-Excavation-004, as presented in Appendix A.

In the north of the Phase 1 footprint excavation; soils were excavated to 1.7 m bgl and grossly contaminated soils (as defined in the Remediation Strategy [1]) were chased out into underlying natural clay soils, to approximately 2.0 m bgl. Further information is detailed in the AtkinsRéalis Technical Note [4] and progress photographs are included in Appendix J.

All excavated material stockpiled on site was managed efficiently and all movements recorded to track waste soils disposal. The stockpile plan is shown in Erith Drawing number 13089-Stockpiles-003 (b) as presented in Appendix A. All waste stockpiles were generated based on visual and olfactory evidence of contamination and kept to a maximum volume of 300 m³ per stockpile. The excavated tarmac and concrete were sorted and stored separately on site in clearly marked stockpiles, while the remaining waste materials were also segregated and stockpiled in designated areas. The site soils and tarmac were sent to a suitable disposal facility whereas the concrete was retained to be crushed and reused on site under a WRAP protocol, as detailed further in Section 5.4. Unexpected contamination is detailed further in Section 5.8.

Prior to disposal, formal classification of the material as inert, non-hazardous or hazardous was undertaken by the Contractor (Erith). The Contractor (Erith) was the Producer of the waste as defined within the Landfill (England and Wales) Regulations 2002 [13] (as amended). This is detailed further in Section 5.6.

4.7.1 Groundwater management

Shallow groundwater / perched water encountered within the excavations was pumped out of the excavations into a groundwater holder tank (capacity of 25,000 litres) and tested. The dewatering of the excavations was carried out in accordance with the Discharge Consent acquired from Thames Water (see Appendix B.4). The wastewater was pumped through a treatment plant, present on site, into the nominated discharge point. A commissioning sample was taken before treatment and weekly samples taken thereafter, to ensure compliance with the discharge consent whilst the system was in use.

During the early stages of works the discharge point was blocked and as such, wastewater was disposed of off-site via tanker. Thames Water mobilised and cleared the drainage system on the 13 February 2025 and a second time on 6 June 2025, as detailed in the Erith Close out report [14]. Off-site disposal of liquid waste such as groundwater and effluent was required and this is detailed in Section 5.9.

4.8 Backfilling

All excavation voids were backfilled to match existing ground levels.

Backfill material used on site included:

- Predominantly imported material (Class 1A bulk fill, Class 6F5 capping material, Class 7J clay and Class 6A self-compacting fill); and
- Chemically suitable site won aggregate generated by the demolition phase (the former concrete slab) and from the remediation excavations.

Backfilling and compaction of fill materials was carried out in accordance with the Specification for Highways Works [15]. All imported materials were chemically tested and compared to the import criteria presented in Appendix B.1



of the detailed design [1] at a frequency of 1 sample per 250 m³. This included geotechnical testing to confirm compliance with the limits for Class 1 or Class 6 materials of the National Grid Core Specification [15].

Generally, the backfilling of the excavation was completed in the following order:

- A starter layer of coarse granular material placed at the base of excavations with approximate thickness of 0.5 m. This layer comprised self-compacting chemically suitable class 6A materials, free from deleterious materials. This was imported fill;
- A layer of Class 7J clay of 0.3 m thickness was placed at the base and sides of the excavations;
- Bulk fill including site won and imported material meeting the Class 1 criteria. This was predominantly Class 1A virgin material and a small proportion of granular site won aggregate was utilised; and
- Capping top layer of approximately 0.3 m thickness comprising chemically suitable class 6F5 materials. This comprised solely imported material, which was predominantly a primary aggregate with a small proportion of recycled aggregate.

Re-use of site won material was undertaken in accordance the WRAP QP [12]. Please refer to Section 5.4 for further details.

4.9 Trial trenches for waste classification

A trial trenching exercise for waste classification purposes was carried out by Erith during the pause in works between the Phase 1 trench and pylon excavation. These trenches were excavated on a 10 m grid across the remaining southern area of the initial footprint to inform the disposal route. These are shown on Erith's trial pit plan, included in Appendix A and photographs are provided in Appendix J.

Erith completed these works in line with a Sampling Plan for Waste Classification and Assessment as set out by the Environment Agency's WM3 [5]. Erith obtained composite samples for waste soils disposal that were unsuitable for a screening assessment; however, an appraisal of visual/olfactory evidence of contamination has been completed.

Two areas of grossly contaminated soils were encountered in the very east of the footprint evidenced by the presence of visual tar, and very strong hydrocarbon odours. These are further detailed in the Phase 1 Remediation Summary Technical Note [4]. Based on visual and olfactory evidence only, the trial trench exercise indicated soils were contaminated across the remainder of the Phase 1 footprint but to a far lesser extent, evidenced by a reduced appearance of tarry residues and hydrocarbon odours. As the remainder of the Phase 1 footprint will not be excavated, grossly contaminated soils areas shall be mitigated as part of the Phase 2 remediation.



5. Verification

5.1 Remediation criteria

Remediation excavations extents were determined laterally by the extents of the proposed development; however, contamination was chased out with depth, if encountered.

Indicators of gross contamination used during the remediation works are presented in Table 5-1.

Table 5-1 – Gross contamination indicators

Contaminant/ Indicator	Criteria
Free Cyanide	Visual: Blue oxide staining.
Polycyclic Aromatic Hydrocarbons (PAHs) and Coal Tar	Visual: Black liquid or semi-solid tar in veins or zones. Heavily stained or coated surfaces. Solid tar/bitumen. Olfactory*: Sample headspace testing** using Photoionisation Detector (PID) over 100 parts per million (ppm)***
Mineral Oils (Total Petroleum Hydrocarbons)	Visual: Liquid oil, oil saturated solids in veins or zones. Heavily stained or coated surfaces. Olfactory*: Sample headspace testing** using PID over 100 ppm

This table should be read with the following associated notes:

Where multiple contaminants are present, the selection criteria for each contaminant will be applied sequentially, starting with the perceived major contaminant.

*Olfactory assessment shall always be confirmed by headspace analysis.

**Headspace analysis criteria shall be subject to calibration of instruments.

***100 ppm headspace reading is not an absolute threshold, but a guide which should be considered in conjunction with visual and olfactory indicators.

Gross contamination was identified within the excavation trench. In the north of the trench, these soils were chased out to 2.0 m bgl where Alluvial soils were encountered. These underlying alluvial deposits showed a marked reduction in visual or olfactory evidence of contamination.

Chemical remediation verification compliance criteria are presented in the approved Remediation Design [1]. The selected remediation verification compliance criteria is a mix of generic assessment criteria, pragmatic limits and site specific assessment criteria (SSAC) derived via DQRA.

5.2 Excavation verification

The remediation excavation was inspected for visual/olfactory indicators of potential contamination in the first instance. As the extents of the Phase 1 remediation excavation were governed by the footprint of the proposed development, chasing out contamination laterally was not carried out and was not a requirement of the detailed design.

Verification testing of the sides of the excavation was undertaken by Erith and these shall be used to inform the Phase 2 remediation; however, a quantitative screening assessment against remediation criteria has not been provided due to the number of exceedances that was anticipated. A qualitative summary is provided herein.



The verification of the earthworks as detailed within the Remediation Detailed Design [1] was through the identification of gross contamination by visual and olfactory assessments.

Verification of the excavations were carried out in accordance with the Remediation Detailed Design [1] and included the collection of validation soil samples from the base taken at a frequency of one per 100 m² on a 10 by 10 m grid, and at 10 m intervals along the sides of the excavation. The verification grid which identifies the sample locations is found in Erith's drawing reference 13089-Excavation004B as presented in Appendix A.

Appendix B of the Remediation Detailed Design [1] specified laboratory testing requirements for validation which included inorganics, benzene, toluene, ethylbenzene and xylenes (BTEX), TPH and PAH.

A total of 27 and 29 samples were collected from the base and sides of the Phase 1 trench and pylon footprint, respectively. The laboratory certificates are presented in Appendix G.1.

Table 5-2 – Validation soil sampling Locations (Phase 1 Remediation)

Sample Location*	Date of Sample	Laboratory Report No.
Grid D3, D4, E3, E4	10/02/2025	25-04886
Grid D5 and E5	12/02/2025	25-05116
Grid D6, D7, E6, E7	12/02/2025	25-05684
Grid D8 and E8	20/02/2025	25-06280
Grid B8, C8	25/02/2025	25-06999

Table 5-3 – Validation soil sampling locations (Pylon Footprint)

Excavation Location	Date of Sample	Laboratory Report No.
Grid B13	04/06/2025	25-18874
Grid B14 and B15	10/06/2025	25-19251
Grid A14, A15, A16 and B16	11/06/2025	25-19398
Grid C13, C16 and D13 to D16	13/06/2025	25-19829
Grid C14, C15 and C16	13/06/2025	25-19826
Grid C13, C14, D14 and D15	13/06/2025	25-19837

**Sample location plan presented in Appendix A, as Erith's drawing reference 13089-Excavation004B, testing within Grid includes excavation base and sides.*

Organic contamination is present at the lateral sides and base of the excavations following remediation. Benzene concentrations exceed the laboratory equipment limit (varying from >10,000 to >13,000 µg/kg) in 17 of the 27 samples obtained from the Phase 1 trench footprint, largely in the northern and eastern sides of the excavation, and at the base.

A review of aromatic total petroleum hydrocarbon (TPH) C5-C7 concentrations do not indicate any exceedances of the saturation limit for benzene (based on a 6% soil organic matter that is more representative than 1%), that are potentially indicative of residual free product. Similarly, concentrations of toluene, ethylbenzene and xylene (m, p & o-) were detected above the laboratory equipment limits (largely >10,000 µg/l) but concentrations of aromatic TPH C7-C8 did not exceed the saturation limit for toluene.



Samples obtained from the sides of cells E5, E6 and E8 in the east of the Phase 1 trench contained very high concentrations of organic compounds (specially speciated TPH and PAH). These exceeded soil saturation limits for aliphatic TPH C12-C16 by at least one order of magnitude. Further excavation of these areas laterally to the east could not be carried out due to the presence of the NGET site boundary line and electrical infrastructure.

This corresponded with an assessment of visual/olfactory evidence of contamination as the remedial works progressed that confirmed the north and east of the Phase 1 trench were grossly impacted with hydrocarbons, as shown in the photographs provided in Appendix J. This information will be utilised to design the Phase 2 remediation.

Within the base and sides of the pylon footprint excavation area, organic contaminant concentrations are lower than the Phase 1 footprint. There are no exceedances of the soil saturation limits at 6% soil organic matter for the BTEX compounds, potentially indicative of free product. and this corresponded with a reduced appearance of visual and/or olfactory evidence of contamination during the works in this area.

5.3 Geotechnical testing

Geotechnical testing was undertaken to classify soils and verify the compaction of the fill and capping material Appendix H.

Testing was also carried out in the imported material, that is included in Appendix F.2.

5.4 Re-used materials

Concrete originating from the former building concrete slab was re-used as crushed aggregate to infill excavation voids. This material was tested and was chemically suitable for reuse on site.

The WRAP Quality Protocol [12] does not require comparison against chemical compliance criteria as it has met end of waste. A visual assessment of the stockpiled material was carried out to corroborate the absence of visual contaminants, olfactory contamination, and deleterious material. For reassurance purposes on this site, all WRAP certified material were tested for a suite of PAHs, TPHs (including BTEX) and phenols at a frequency of one sample per 250 m³ of material, with a minimum of three samples per source. Laboratory data is presented in Appendix 9.G.3G.3. No other materials were reused on site.

In total, 1081 m³ of site won crushed aggregate was re-used on site in accordance with the WRAP QP [12] and generated from the breakout of the above ground slab and excavation works. All material was deemed to be compliant.

5.5 Imported materials

The excavation voids were backfilled to match existing ground levels. The infill material origin was specified by the Contractor at the time of the works and approved by the Supervisor prior to importing material on to the site. Excavations utilised chemically suitable imported material for use as bulk fill.

Four material types were brought onto site to backfill the excavations:

- Class 6F5 aggregate for capping;
- Class 1A material for general fill;



- Class 6A self-compacting fill, used in areas where over-excavation was carried out due to the presence of gross contamination and where standing water is present; and
- Class 7J material low permeability clay for use at the base and sides of the excavation.

The imported volumes are detailed in Table 5-4 and available in Appendix F.

Table 5-4 – Import volumes

Material Types	Source Name	Volume Imported (m³)	Samples obtained
6F5	RMS Sunshine Wharf, Bradfield Road, London, E16 2AX	560	3
1A	RMS Sunshine Wharf, Bradfield Road, London, E16 2AX	2330	10
6A	RMS Sunshine Wharf, Bradfield Road, London, E16 2AX	330	3
7J	Aggreg8 Depot, Mawinheards Business Centre, High Easter Road, Barnston, Essex, CM6 1ND	580	3

Laboratory certificates are found within Appendix F. All chemical test results for the imported material largely complied with the criteria as set by the Remediation Detailed Design [1].

Two exceedances of zinc were identified in two of the 1A stockpile samples, with concentrations of 150 mg/kg and 170 mg/kg, exceeding the assessment criteria of 100 mg/kg. This imported aggregate would be placed within the backfilled trench, above the impermeable clay layer that would prevent leaching of any contamination into the underlying soils and groundwater. As the imported material did not have any visual and olfactory evidence of contamination, it was considered acceptable for use on site and was placed in the trench.

The import delivery tickets are provided in Appendix F.1.

5.6 Exported material

All soils were disposed of off-site, for recovery at a soil treatment centre or for disposal to landfill, as determined by appropriate waste soils classification. All works were undertaken as per the Waste (England and Wales) Regulations 2011 (SI 2011/988) (as amended). Table 5-5 provides the details of all exported materials from site, that includes soils, other materials and recycled materials.

Table 5-5 – Disposal facility information

Receiving Facility Name	Waste Carrier's Licence	Facility Address	EWC	Waste Description	No. Loads	Weight recorded (tonne)	Estimated Volume (m3) *
Erith Haulage	CBDU903 58	Augean Ltd East Northants Resource Management Facility	17 05 03	Hazardous Soils	184	3329.96	1585.70



Receiving Facility Name	Waste Carrier's Licence	Facility Address	EWC	Waste Description	No. Loads	Weight recorded (tonne)	Estimated Volume (m3) *
Erith Haulage	CBDU903 58	Keltbray Ltd Plaistow Wharf	17 05 03	Hazardous Soils	137	2523.17	1201.51
Erith Haulage	CBDU903 58	NRS Ltd, Cornets End Recycling Facility	17 05 03	Hazardous Soils	9	178.30	84.90
A&G Midlands Ltd	CBDU339 782	NRS Ltd, Cornets End Recycling Facility	17 05 03	Hazardous Soils	5	94.34	44.92
Coleshill Tippers Ltd	CBDU394 949	NRS Ltd, Cornets End Recycling Facility	17 05 03	Hazardous Soils	3	58.08	27.66
G Webbs Ltd	CBDU941 74	NRS Ltd, Cornets End Recycling Facility	17 05 03	Hazardous Soils	5	96.53	45.97
Joseph Galea	CBDU214 831	NRS Ltd, Cornets End Recycling Facility	17 05 03	Hazardous Soils	5	91.67	43.65
RMS Ltd	CBDU149 396	Bradfield Road	17 03 02	Tarmac	9	180	85.71
SRC Group Ltd	CBDU202 785	Highwood Quarry	17 01 01	Crushed Concrete	7	140	66.67
Westminster Waste Ltd	CBDU202 785	Anderson Way	17 02 01	Wood	1	42*	20
EMR	CBDU188 448	Unit 6, Factory Road, Silvertown, E16 2EJ	17 04 05	Metal	1	10.2	5.9
Powerdays Ltd	PP3093E E	Crossan House	17 09 04	General Waste	3	2.08	0.99
Powerdays Ltd	PP3093E E	Crossan House	16 02 14	WEEE Waste	1	0.2	0.1
Powerdays Ltd	PP3093E E	Crossan House	17 09 04	Mixed Recycling	1	1.38	0.7

* Estimated volume or weight based on conversion factor of 2.1 tonne per m³.

In total, approximately 1585.7 m³ of contaminated soils was disposed of to landfill with an approximate 1448.6 m³ sent to various soil treatment facilities.

Waste characterisation testing is presented in Appendix E.1 and Appendix E.2 respectively. HazWasteOnline assessments completed by Erith have been provided for excavated soils from the Phase 1 remediation excavation.

Waste disposal tickets provided by Erith are presented in Appendix E.3. Details of waste carrier licenses can be found in Erith's Close Out report [14].



5.7 Below ground obstructions

No below ground obstructions were identified during the remediation works.

5.8 Unexpected contamination

There was potential for unexpected contamination to be encountered where excavations extended beyond the areas already investigated or a different contaminant type identified. Suitably trained members of the Contractor's team were present on-site during excavation works with an AtkinsRéalis Supervisor to visually monitor excavations and arisings and to obtain soil samples when required.

Waste soil material containing laboratory waste such as laboratory glassware and syringes (suspected volumetric in nature), was found within one of the 10 m x 10 m grids in the centre of the trench. This material was stockpiled separately and covered with a 1000-gauge membrane and had a total volume of 30 m³. Further testing was undertaken on this material where the presence of asbestos containing materials was also identified. The material is currently stored within three locked skips on site, awaiting disposal off-site. This is being managed between Erith and the Environment Agency and it is understood that plans for removal of this material are in progress.

5.9 Water management

During remediation works, off-site disposal of contaminated groundwater using a tanker was undertaken in addition to the on-site groundwater treatment system. The drainage system was blocked at the beginning of the works so treated water could not be discharged. The off-site disposal by tanker was carried out during this period.

In total, the generated volume of liquid waste was 93,601 litres which was removed and disposed to respective disposal facilities as summarised in Section 5.6.

Table 5-6 – Disposal facility information (Liquid Waste)

Waste	Facility Address	EWC	No. Loads	Estimated Volume (litres)
Groundwater	Ribbex Ltd, 34 Burrowfields, Welwyn Garden City 34 Burrowfields, Welwyn Garden City (WP3707PJ)	19 13 08	3	69,000
Welfare (sewage)	Deephams Sewage Treatment Works Picketts Lock Lane London Borough of Enfield N9 0BA (CBDU84986)	20 03 04	54	24,602

Following maintenance of the drainage system, groundwater recovered from the remediation area was processed using the on-site groundwater treatment system and discharged to the sewer.

Analytical testing of the discharge water to ensure compliance with the discharge consent was undertaken by Erith. A total of three samples were collected and no exceedances were reported. A summary of the analytical laboratory reports are enclosed in Appendix G.4.



5.10 Decommissioned and remaining boreholes

All boreholes within the remediation extents were decommissioned with bentonite in accordance with Environment Agency guidance [16], with the exception of BH24-03, BH24-15, BH24-14, BH11, BH24-09, which were protected during the remediation. All boreholes outside of the remediation trenches were retained.

Table 5-7 provides the full list of decommissioned boreholes.

Table 5-7 – Boreholes decommissioned

Borehole	Eastings	Northings	Screened Strata
BH23-05	535418	191490	Made Ground
BH23-04	535396	191426	Made Ground
BH23-03	535401	191435	Made Ground
BH12-04	535391	191416	River Terrace Deposits
BH12	535368	191395	River Terrace Deposits
BH24-10	535356	191387	River Terrace Deposits
BH24-11	535367	191371	River Terrace Deposits
WS12-03	535368	191381	Made Ground
WS12-06	535387	191402	Made Ground / Alluvium



6. Environmental monitoring

Erith, the appointed remediation contractor, implemented environmental monitoring of emissions associated with the works, inclusive of dust, odours, vapours and potential airborne asbestos fibres.

Environmental monitoring was carried out to assess whether the works are compliant with relevant regulations and guidance and identify whether implementation of mitigation of the control measures may be necessary.

Environmental monitoring was conducted on a weekly basis starting from 13 January 2025 continuing until the 4 July 2025, coinciding with the excavation and backfilling works. Monitoring was paused during the stand-down in works between the 28 March and 21 April 2025

The appropriate guidance/compliance levels are detailed in Table 6-1. Environmental reports are presented in Appendix I.

Table 6-1 – Guidance/Compliance Levels

Parameter	Guidance / Compliance Levels	Reference	Monitor Type	Frequency
Personal exposure to dust	180 µg/m ³ TWA over a 15 minute period	IAQM Guidance on Monitoring in the Vicinity of Demolition and Construction Sites.	Optical Particle Counters utilised (Turnkey Osiris)	Daily
Noise	75 dB1 (Category C Threshold Value)	BS 5228:2014: Part 1 'Code of practice for noise and vibration control on construction and open sites. Noise' ABC method from BS 5228:2014: Part 1 to be used	Portable Type 1 integrating sound level meter (SLM) with an external microphone, tripod and full weather proofing in accordance with BS 6698 (Cirrus CR811B or similar)	Daily
Vibration – environmental	5.0 mm/sec (conservative approach)	BS7385: Part 2 1993 'Excavation and Measurement in Buildings: Guide to Damage Levels from Ground-Borne Vibrations'	Portable weather-proof seismic recording instrument such as the Vibrock V901, V9000, Sigicom or similar. iVIBE data logger was used.	Daily
Volatile Organic Compounds (VOCs)	TWA = 1 ppm STEL = 3 ppm Instantaneous Low level = 10 ppm; Instantaneous High level = 20 ppm	Workplace Exposure Limits, EH40/2005	PID (MiniRAE for use site wide and ToxiRAE for personal use). Passive and Active "Tenax" or similar tubes for low level VOC monitoring.	Daily (Weekly for low level VOC)



6.1 Dust

Dust was minimised using a water bowser when required. The dust levels were monitored in real time by a Turnkey Osiris monitor (optical particulate monitor). The results were reported on a regular basis in order to identify scenarios where mitigation may be required and allow for appropriate measures to be put in place. In addition to the monitoring, dust was always monitored visually, so measures to reduce dust could be taken immediately when necessary.

Overall, the monitoring results show compliance with the guidance levels and there were no exceedances during the project.

Dust mitigation measures such as dampening down and covering stockpiles were also implemented during periods of dry and windy weather. The site boundary fence was also fitted with a dust screen to reduce any migration of particles onto neighbouring areas.

The results are contained within Appendix I.

6.2 Noise and vibration monitoring

In order to reduce disturbance to local residents and the surrounding environment, works were undertaken between 08:00 to 17:00 on weekdays.

Acoustic sound barriers were placed around generators to reduce noise nuisance. Continuous monitoring occurred near activities known to potentially cause noise above the compliance levels with respect to the nearest sensitive receptors (adjacent commercial site users). Noise and vibration monitoring was carried out in fixed location was in the west of the site.

Both noise and vibration monitoring results reported no noticeable issues. The majority of the noise records were below the 75 decibel (dB) threshold.

6.3 Air quality monitoring

Air quality monitoring during the remediation phase was undertaken using a combination of the following methods:

- Continuous monitoring of VOCs near work areas and site boundary using a photoionisation detector (PID);
- Continuous low detection limit volatile organic compound (VOC) monitoring to obtain speciation of individual VOCs and enable comparison to short-term and long-term air quality standards; and
- Odour “sniff testing”, undertaken by a suitably trained VHE engineer during the daily walkover.

The low detection limit VOCs were measured using sorbent tubes (i.e. Tenax tubes) installed at four locations at the site: the northern, southern and western site boundaries, and in the east of the Phase 1 excavation area.

Overall, the VOC concentrations were low throughout the remediation project. Higher concentrations were detected by the personal Minirae300 PID monitoring units during weeks 6, 15, 7 and 22. There short-term peaks in concentrations were caused by excavation activities and the operators deployed additional controls. There were no exceedances of EH40 Workplace exposure limits recorded on the boundary monitors.



7. Remediation summary

7.1 Final site conditions

Following demobilisation, the site was handed back to National Grid and their property manager BNP Paribas (BNP) on 15 August 2025.

A survey of the finished ground levels where remediation works have been undertaken is provided in Appendix B.1

All backfilled areas have been left level to match pre-existing ground levels and surfacing to ensure that no potential trip hazards remain on site.

Photographic records of the site area are enclosed in Appendix 9.B.1 and an aerial image of the finished site is shown in Figure 7-1.

During remediation and excavation of site soils, material resembling potential laboratory waste was encountered in the centre area of the Phase 1 remediation footprint. Prior to the pause in works, approximately 30 m³ of material was excavated from the Phase 1 remediation footprint that comprised of anthropogenic constituents such as broken laboratory glassware, syringes, and asbestos containing materials. Grossly contaminated soils were not encountered at this location. The material is currently stored within three locked skips on site, awaiting disposal off-site. This is being managed between Erith and the Environment Agency. Regulatory correspondence is provided in Appendix C.





Figure 7-1 - Aerial view of the site, post remediation work.

7.2 Residual contamination

The objective of the Phase 1 remediation was to excavate clean corridors for the underground cables and footprint for the proposed pylon development. It was anticipated that residual contamination would be present throughout the area and across the site.

A review of the validation sample data from the base and sides of the excavations indicates high concentrations of organic contamination in the northern and eastern extent of the Phase 1 trench. No further remediation can be carried out along the eastern extent due to the presence of the NGET site boundary; however, areas north of the trench shall be targeted as part of the Phase 2 remediation.

Outside of the excavation footprints, all contamination will be discussed further in the Phase 2 remediation detailed design, in line with the original remediation strategy [2].

It is noted that soils with laboratory type material resembling historical backfill may be present beyond the limits of the Phase 1 trench remediation footprint. This should be mitigated with respect to construction and maintenance workers but is outside of the scope of this report.

7.3 Post remedial works conceptual site model

Following the remediation, the identified unsaturated zone PCLs in Table 3-1 have been partially remediated; however, the remainder of the PCLs shall be mitigated as part of the Phase 2 remediation. The post remedial works conceptual site model is provided in Table 7-1.



Table 7-1 – Post remedial works conceptual site model

Source and Area/Structure	Critical Receptors	Pathway	Potential Consequence of Complete Contaminant Linkage	Likelihood of Complete Contaminant Linkage	Risk	Mitigation
Asbestos in shallow soils	Existing site users	Dust/fibre inhalation	Severe	Unlikely	Moderate Risk	Addressed by excavation, backfilling with clean aggregate and installation of a capping layer within the Phase 1 remediation footprint. Unlikely to present a risk to existing or future site users but the risk to construction workers should be mitigated by operational controls.
	On-site workers in excavations	Dust/fibre inhalation	Severe	Unlikely	Moderate Risk	
Hydrocarbon impacted Made Ground and Alluvium across the site	Surface water and downgradient groundwater in the Secondary A Aquifer	Leaching/dissolution from contaminated soil followed by migration in groundwater;	Moderate	Likely	Moderate Risk	Overall a total volume of 3,800 m ³ soils were excavated from within the Phase 1 trench and pylon footprint, and



Source and Area/Structure	Critical Receptors	Pathway	Potential Consequence of Complete Contaminant Linkage	Likelihood of Complete Contaminant Linkage	Risk	Mitigation
		Leaching / dissolution of NAPL followed by migration in groundwater	Moderate	Likely	Moderate Risk	disposed of offsite. This has partially addressed these PCLs and remaining areas of gross contamination within the Made Ground and Alluvium shall be discussed as part of the Phase 2 remediation detailed design and mitigated.
		Soil erosion/surface flooding resulting in discharge of contaminants to surface water	Moderate	Unlikely	Low Risk	
Impacted groundwater within the KPGR across the wider site.	Off-site workers to the west and south of the site	Inhalation of vapours	Moderate	Likely	Moderate Risk	Removal of contaminated soils from within the Phase 1 and pylon footprints benefits these PCLs. Contaminated groundwater within the trench was also recovered and treated and discharged (or removed by tanker).
	Surface water and downgradient groundwater in the Secondary A Aquifer	Migration in groundwater	Moderate	Likely	Moderate Risk	



Source and Area/Structure	Critical Receptors	Pathway	Potential Consequence of Complete Contaminant Linkage	Likelihood of Complete Contaminant Linkage	Risk	Mitigation
						These PCLs shall be mitigated as part of the Phase 2 remediation through betterment, achieved through source reduction.
Dense non-aqueous phase liquid (DNAPL) at the base of the KPGR in the centre and south of the wider site.	Off-site workers to the west and south of the site	Inhalation of vapours	Moderate	Likely	Moderate Risk	Not addressed by the Phase 1 works but will be specifically addressed as part of the Phase 2 remediation.
	Surface water and downgradient groundwater in the Secondary A Aquifer	Leaching / dissolution of NAPL followed by migration in groundwater	Moderate	Likely	Moderate Risk	
		NAPL migration and discharge to surface water	Moderate	Likely	Moderate Risk	



8. Conclusions and recommendations

The Phase 1 remediation began in January 2025 followed by a stand down on the 13 March 2025 due to new design proposals. Remediation works were then continued until July 2025, and incorporated further excavation of a pylon footprint area. Contamination was excavated and disposed of off-site in accordance with the agreed scope for the Phase 1 remediation.

Overall, a total volume of soils and concrete of 3,800 m³ has been excavated and disposed of off-site as part of the remediation, equating to approximately 60% of the initial proposed excavation for the Phase 1 remediation. As the objectives of the Phase 1 remediation were principally development led with a consequential betterment of site conditions, the objectives are considered to have been met. Gross contaminated soils have also been chased out throughout the works, where encountered, as part of the remediation, and where practicable.

Areas of gross contamination identified in the unsaturated zone, within the remainder of the Phase 1 remediation footprint shall be mitigated as part of the Phase 2 remediation. Information on this shall be provided in the Phase 2 Remediation Detailed Design [1], that shall be prepared under a separate cover and submitted to the regulators as part of the DCO process.

It is recommended that the remaining PCLs are mitigated with the objective terms of betterment as part of the Phase 2 remediation, as discussed in detail in the AtkinsRéalis Phase 2 Remediation Options Appraisal [17]. This has been submitted to the Environment Agency and was subsequently approved.

The retained groundwater boreholes still present on site shall be retained for monitoring and decommissioned in line with good practice following the Phase 2 remediation.

This report should be submitted to confirm completion of Phase 1 activities to the relevant regulators and the Environment Agency as part of the DCO process.



9. References

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