

TECHNICAL NOTE

North Island, Tottenham Hale – Validation Report: Enabling, Piling and Attenuation Tank Works

Issue Record			
Project No.	1320		
Document Ref.	1320_TN_230228_ValRpt		
Issue Date	28/02/2023		
Client	HG Construction Limited		
Issued By	Nick Tocher		28/02/2023

1 Introduction

Symbiotic Solutions Limited (SSL) have been commissioned by HG Construction Limited (the Client) to prepare a remediation validation report for the remediation works undertaken at the development site at North Island, Tottenham Hale, London N17 9LR (The Site).

The site is permitted for redevelopment under planning consent HGY/2018/2223 issued by the London Borough of Haringey. The development will comprise demolition and removal of the existing site structures and construction of a 19-storey building to provide 136 no. residential units and 3 no. retail units on the ground floor. The site location and proposed development layout drawings are presented in Appendix 1.

This validation report is required to address (in part) Condition A25 of the above consent (Contaminated Land – Part 2, relating to verification of remediation).

The site has previously been subject to geoenvironmental site investigation and risk assessments, and remediation requirements have been determined. These are set out in the following Burro Happold report which has previously been submitted and accepted (planning ref. HGY/2020/3175) in support of discharge of Conditions A24 (Contaminated Land) and A19 (Monitoring) of HGY/2018/2223.

Burro Happold report, *Tottenham Hale Centre Development – North Island, Geoenvironmental Investigation Report*, ref. 0044753-BHE-XX-XX-RP-Y-0001, dated 1st December 2020 (R.1).

The remediation / validation works relevant to the enabling works phase of the development (site clearance, removal of below ground obstructions and installation of the piling mat, piling works and installation of the attenuation tank) have previously been reported by SSL (SSL report ref. 1320_TN_210607_ValRpt, *North Island, Tottenham Hale – Validation Report: Enabling, Piling and Attenuation Tank*, dated 7th June 2021); the report is included in Appendix 6. The findings of the report are also summarised in Section 3.

This report presents the outstanding remediation and validation works completed during the construction phase; specifically, the:

- Installation of capping layer soils in areas of soft standing – including import of suitable soils.
- Installation of water pipe to the service supplier's specification.
- Ongoing watching brief for unexpected contamination.

2 Summary of Site Investigation and Remediation Strategy

The Burro Happold (BH) report (R.1) determined that (as summarise in Section 13.1 of the BH report):

No gross visual or olfactory evidence of contamination was encountered during the intrusive works. Elevated concentrations of some heavy metals (arsenic, beryllium and lead) and some PAHs exceeded the residential without plant uptake thresholds in the Made Ground. No concentrations of any contaminants analysed in soil exceeded the commercial or Acute thresholds. Asbestos containing materials (ACM) was identified as relatively bound and low friability fragments (tiles) within the Made Ground. Of the 17 Made Ground samples screened for asbestos, one included a positive detection of asbestos and was subsequently quantified at the limit of detection (0.001% chrysotile). Approximately 30% of samples included concentrations of copper and zinc exceeding phytotoxic threshold.

Concentrations in groundwater of some metals (cadmium, copper, nickel and zinc) were reported above their respective EQS. A similar groundwater regime was also recorded on the Ashley Road West Plot to the northeast and Ashley Road East Plot further to the northeast, suggesting these slightly elevated concentrations are present within the local area rather than localised on the Plot. Hydrocarbons in groundwater reported at concentrations less than laboratory limits of detection. The results do not report elevated lead or arsenic concentrations in groundwater; therefore, substantial leaching of metals into groundwater from the Made Ground is unlikely to be occurring at the Plot.

The ground gas regime was determined as CS1; therefore, ground gas protection measures are not required.

The relevant recommended mitigation measures (Remediation Strategy) comprised:

- Risks to future users and planting in soft landscaped areas from contact with soils should be mitigated by installation of a geotextile liner and a minimum of 600mm of suitable (for chemical and horticultural purposes) imported soil.
- Suitable material to be imported for use within soft landscaped areas and tree pits. The import criteria were set out in Appendix H of the BH report and are included as Attachment 2 of this report.
- Risks to water supply pipework to be mitigated by using appropriate barrier pipe as agreed with the local network provider and with Building Control.
- Made Ground materials removed from the Plot to be managed in accordance with waste legislation.
- Unexpected or otherwise exceptional contamination (including potential ACM fragments) encountered during development works to be managed through operation of a watching brief and discovery strategy.

3 Summary of Enabling Phase Works Previously Reported

In summary the works undertaken by SSL and the Client relevant to the remediation strategy during the enabling works and initial groundworks phases comprised:

- Enabling works including removal of obstructions and reducing site levels prior to installation of the piling platform.
- Installation of piling platform: import of suitable crush materials and installation of the piling mat.
- Piling and removal of pile arisings.
- Installation of the attenuation tank.
- Removal of waste soils.

The relevant validation actions comprised:

- Maintenance of a watching brief - No evidence of unexpected or otherwise exceptional or otherwise potentially significant contamination was identified by SSL or the Client during the course of the works undertaken.
- Validation of crush imported for the piling mat and other fill. The materials were deemed suitable for use on site within the context of their usage.
- Tracking of waste materials removed from the site.

At the time of reporting of the enabling works phase remediation / validation works the following remediation works remained outstanding:

- Installation of capping layer soils in areas of soft standing – including import of suitable soils.
- Installation of water pipe to the service supplier's specification.
- Ongoing watching brief for unexpected contamination.

4 Summary of Remediation and Validation Works – Construction Phase

4.1 On-Going Watching Brief

It is understood that no evidence of unexpected or otherwise exceptional or potentially significant contamination was identified by the Client during the course of the works undertaken; see correspondence included in Appendix 3.

4.2 Water Pipe

The underground potable water supply services have been installed using ALPE barrier pipe in line with the RMS (R.1) and Thames Water requirements. The service drawings are included in Appendix 4 along with photographs of the main service entries showing the barrier pipe (brown line on blue pipe).

4.3 Imported Topsoil and Installation of Capping Layers

Soft landscaping comprising tree pits and planters are present at ground level and on the roof terrace. The soft landscaping layouts and construction drawings are presented in Appendix 2.

The tree pits and soft landscaping areas (including the soil capping layers) were installed by the client in accordance with the construction drawings. It is noted that only within the tree pits in the courtyard and in the external area south-west of the building that the soils are installed directly over / within pre-existing site soils and in all cases imported (and in-situ) soils are covered by an engineered tree surround (i.e. there is minimal exposure of the soils). In the planters the soils are placed over an engineered base.

Topsoils for use in the planters and tree pits was imported to site in bags. The delivery notes are included in Appendix 5.

Samples were obtained from completed planting areas on the roof (sample refs. 1320/101 – 104) and from stored bagged soils (refs. 1320/105 – 106) on the 7th February 2022. At this time the planters and tree pit on the ground level were not complete, however it was understood from the Client that sufficient soils were on site at this time to complete all the planting areas. Photographs of the roof terrace planters and the soils are included in Appendix 5.

The samples were submitted for laboratory analysis in line with the remediation strategy requirements. The laboratory report (ref. 23-01888) is included in Appendix 5.

All chemical determinands pass residential without plant uptake (RwoHP) screening criteria and the chemical (contaminant) parameters set by the RMS and included in Appendix 2.

On the basis of the chemical results for the subsoil and topsoil and the observations of the physical characteristics of the soil it is considered that the soils are fit for use on site. Further on the basis of the construction details (in planters with engineered bases or in tree pits around 900mm deep with tree surround covers placed over the soils) the soils have been installed broadly in-line with the RMS and that the planting areas are very unlikely to present a significant risk to human health or the wider environment.

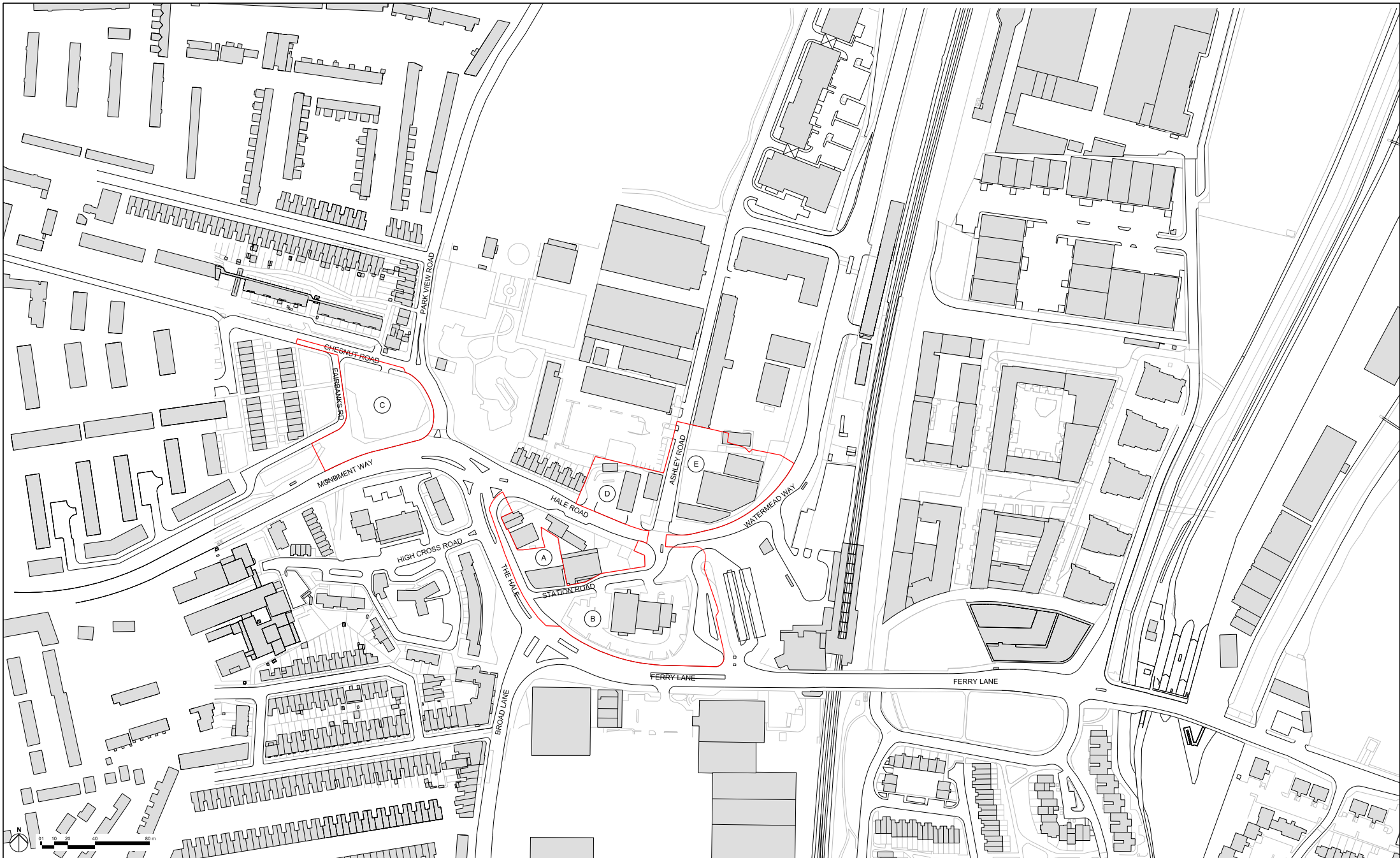
5 Conclusions

On the basis of the site observations, soils testing results and the information supplies it is considered that the remediation actions required at the site have been completed and that the site is fit for use and unlikely to present a risk to human health or the wider environment

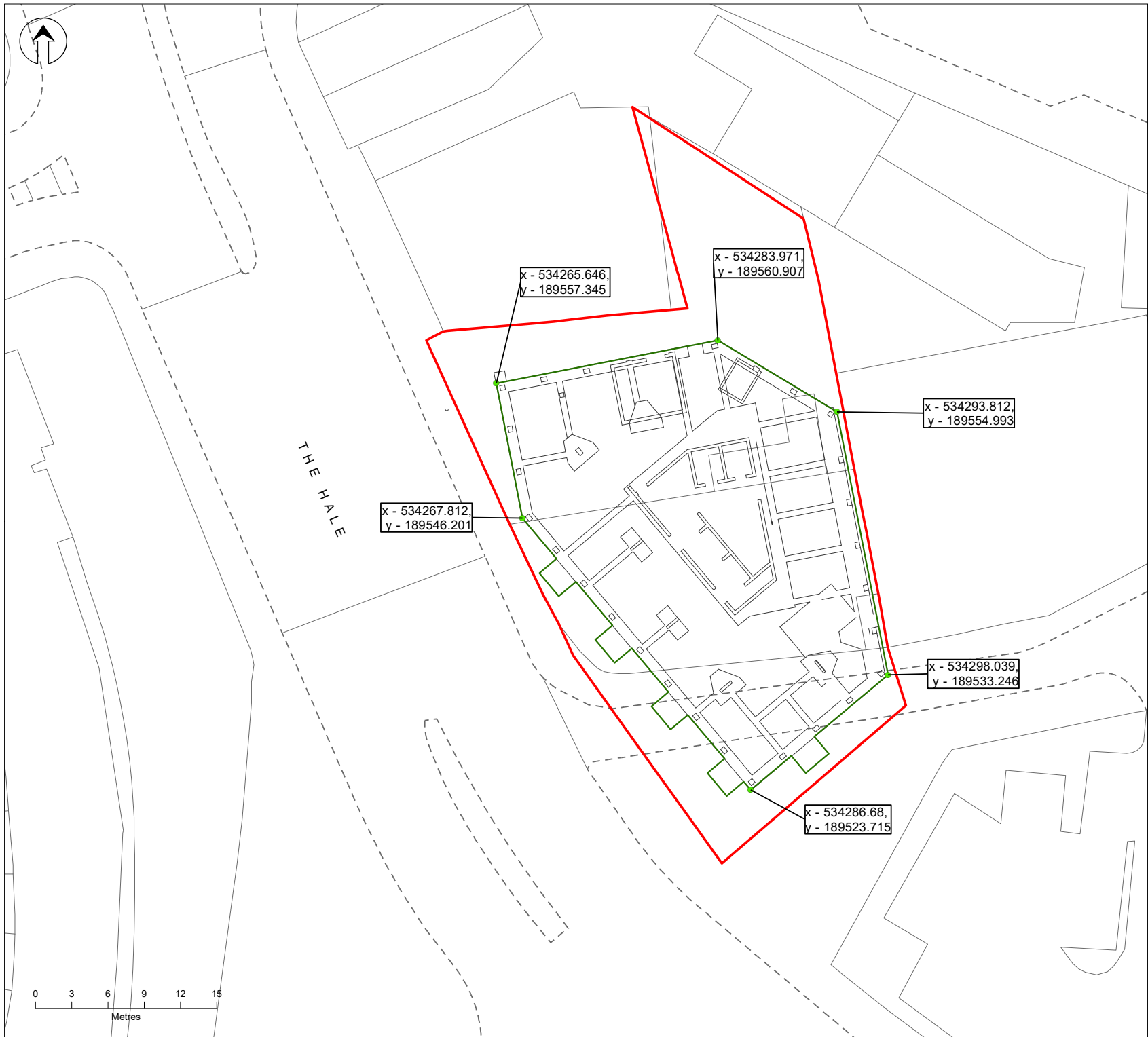
6 References

- R.1. Burro Happold report, Tottenham Hale Centre Development – North Island, Geoenvironmental Investigation Report, ref. 0044753-BHE-XX-XX-RP-Y-001, dated December 2020.
- R.2. Symbiotic Solutions Report, North Island, Tottenham Hale – Validation Report: Enabling, Piling and Attenuation Tank, ref. 1320_TN_210607_ValRpt, dated 7th June 2021 (included in Appendix 6).

ATTACHMENT 1: SITE LOCATION AND LAYOUT DRAWINGS



KEY	REV DATE	ARCHITECTS		NOTE		
Application Site Boundary	P00 July '18 ISSUED FOR INFORMATION	Ashley Road East	ALISON BROOKS ARCHITECTS Unit 016, Highgate Studios 53-57 Highgate Road London N15 1TL info@alisonbrooksarchitects.com +44 (0)207 267 9777	Ashley Road West Webbourne		Pollard Thomas Edwards Disperser Wharf 38 Graham Street London N1 6JX T +44 (0) 20 7336 7777
A North Island						
B Ferry Island						
C Webbourne						
D Ashley Road West						
E Ashley Road East						
		Ferry Island North Island	ALLFORD HALL MONAGHAN MORRIS Monkshead, 5-23 Old Street London EC1A 1BE T +44 (0) 20 7251 5261 F +44 (0) 20 7251 5123 www.allfords.co.uk	Ferry Square Pavillion	RUFFARCHITECTS 205 Wandsworth Street London W1R 8J1 T +44 (0) 20 3614 8992 info@ruffarchitects.co.uk	



KEY:

- North Island Plot Boundary
- Above Ground Building Setting-Out
- Below Ground Building Setting-Out

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PROJECT:
TOTTENHAM HALE

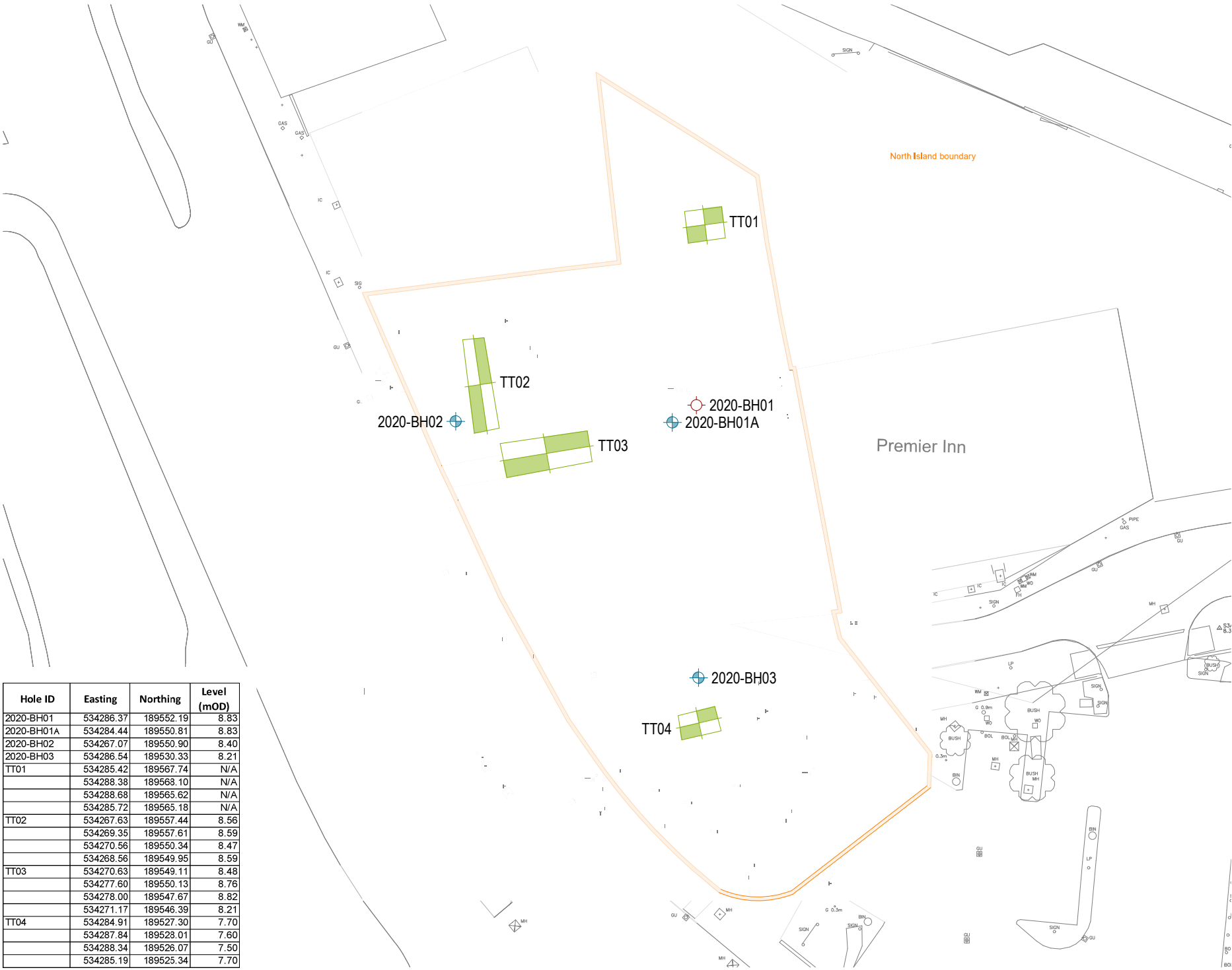
DRAWING TITLE:
North Island: Building Setting Out Plan

SCALE AT A3: 1:300	STATUS: FINAL	DATE: 29/07/2020
DRAWN BY: AH	CHECKED BY: LAW	APPROVED BY: MS

ARGENT | **RELATED**
4 Stable Street, London, N1C 4AB
T: +44 (0) 20 3664 0200

DRAWING NUMBER:
TOT-PRDE-SITE-19-A-P01

REV:
P01



Hole ID	Easting	Northing	Level (mOD)
2020-BH01	534286.37	189552.19	8.83
2020-BH01A	534284.44	189550.81	8.83
2020-BH02	534267.07	189550.90	8.40
2020-BH03	534286.54	189530.33	8.21
TT01	534285.42	189567.74	N/A
	534288.38	189563.10	N/A
	534288.68	189565.62	N/A
	534285.72	189565.18	N/A
TT02	534267.63	189557.44	8.56
	534269.35	189557.61	8.59
	534270.56	189550.34	8.47
	534268.56	189549.95	8.59
TT03	534270.63	189549.11	8.48
	534277.60	189550.13	8.76
	534278.00	189547.67	8.82
	534271.17	189546.39	8.21
TT04	534284.91	189527.30	7.70
	534287.84	189523.01	7.60
	534288.34	189526.07	7.50
	534285.19	189525.34	7.70

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North (indicative)

KEY

- BH - Cable Percussion Borehole
- BH - Aborted Borehole Location
- TT - Trial Trench

NOTES

- Coordinates and levels quoted refer to Ordnance Survey (OS) National Grid.
- Base drawing provided by Volker, with drawing title 'North Island bore holes positions and WSI trenches 210920'.
- This drawing should not be scaled, only use annotated dimensions.
- All levels are in mOD (metres above Ordnance Datum).
- Trial Trenches locations surveyed by Volker, Borehole locations surveyed by Concept.

ISSUES

Revision	Details	By	Date
00	Drawing completed and corrected	AC	14/10/20

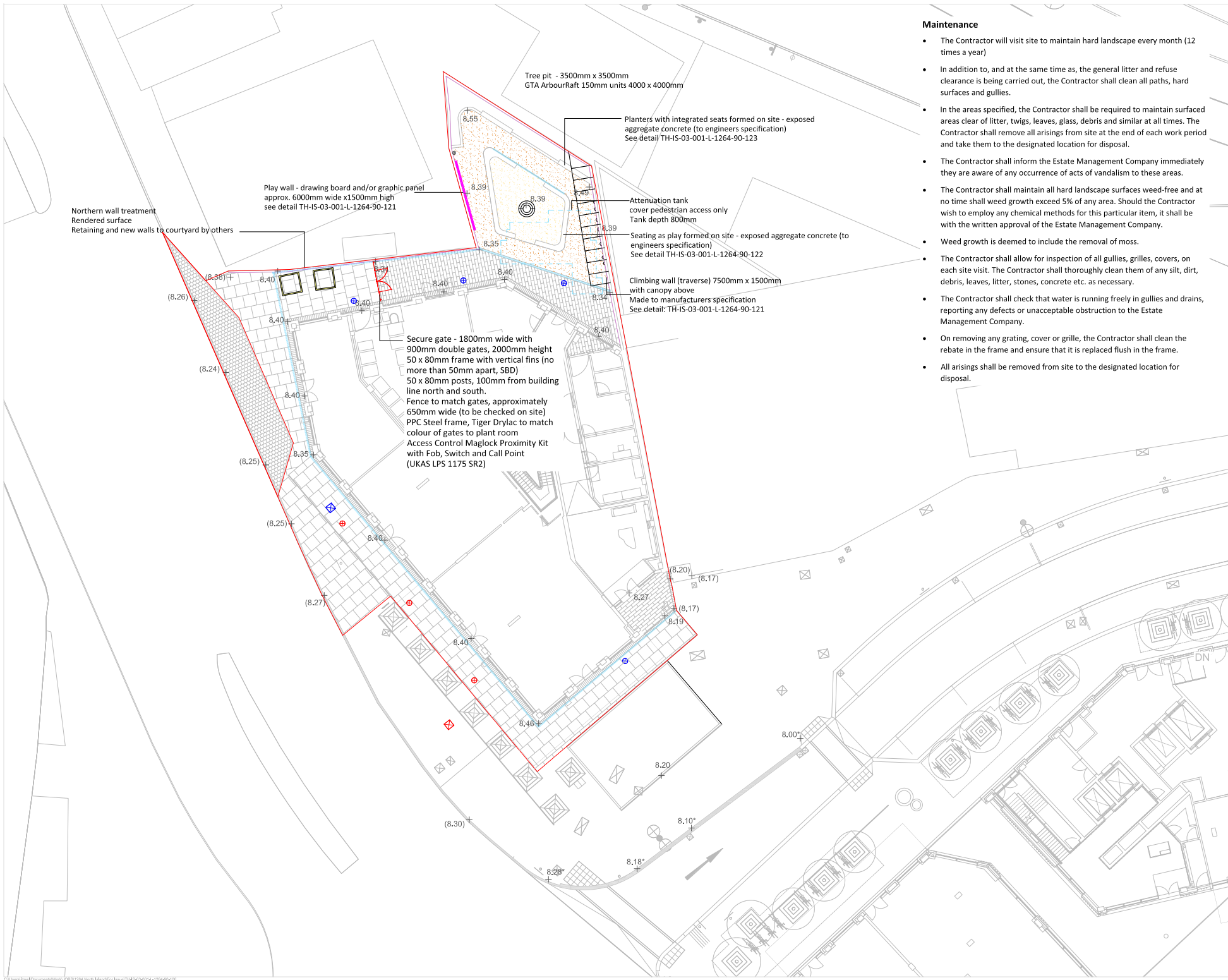
Client: Gardiner and Theobald LLP

Project: Tottenham Hale - North Island

Address: North Island, 33 The Hale, Tottenham Hale, London, N17 9JZ

Plan title: Exploratory Hole Location Plan

Project no	20/3466	Drawing no	01	Revision	00
Scale	NTS	Sheet size	A3	(297 x 420, 0mm)	
Date	October 2020	Status	Issue		
Surveyed by	C	Drawn by	AC	Checked by	OS
				Passed by	AB



Maintenance

- The Contractor will visit site to maintain hard landscape every month (12 times a year)
- In addition to, and at the same time as, the general litter and refuse clearance is being carried out, the Contractor shall clean all paths, hard surfaces and gullies.
- In the areas specified, the Contractor shall be required to maintain surfaced areas clear of litter, twigs, leaves, glass, debris and similar at all times. The Contractor shall remove all arisings from site at the end of each work period and take them to the designated location for disposal.
- The Contractor shall inform the Estate Management Company immediately they are aware of any occurrence of acts of vandalism to these areas.
- The Contractor shall maintain all hard landscape surfaces weed-free and at no time shall weed growth exceed 5% of any area. Should the Contractor wish to employ any chemical methods for this particular item, it shall be with the written approval of the Estate Management Company.
- Weed growth is deemed to include the removal of moss.
- The Contractor shall allow for inspection of all gullies, grilles, covers, on each site visit. The Contractor shall thoroughly clean them of any silt, dirt, debris, leaves, litter, stones, concrete etc. as necessary.
- The Contractor shall check that water is running freely in gullies and drains, reporting any defects or unacceptable obstruction to the Estate Management Company.
- On removing any grating, cover or grille, the Contractor shall clean the rebate in the frame and ensure that it is replaced flush in the frame.
- All arisings shall be removed from site to the designated location for disposal.

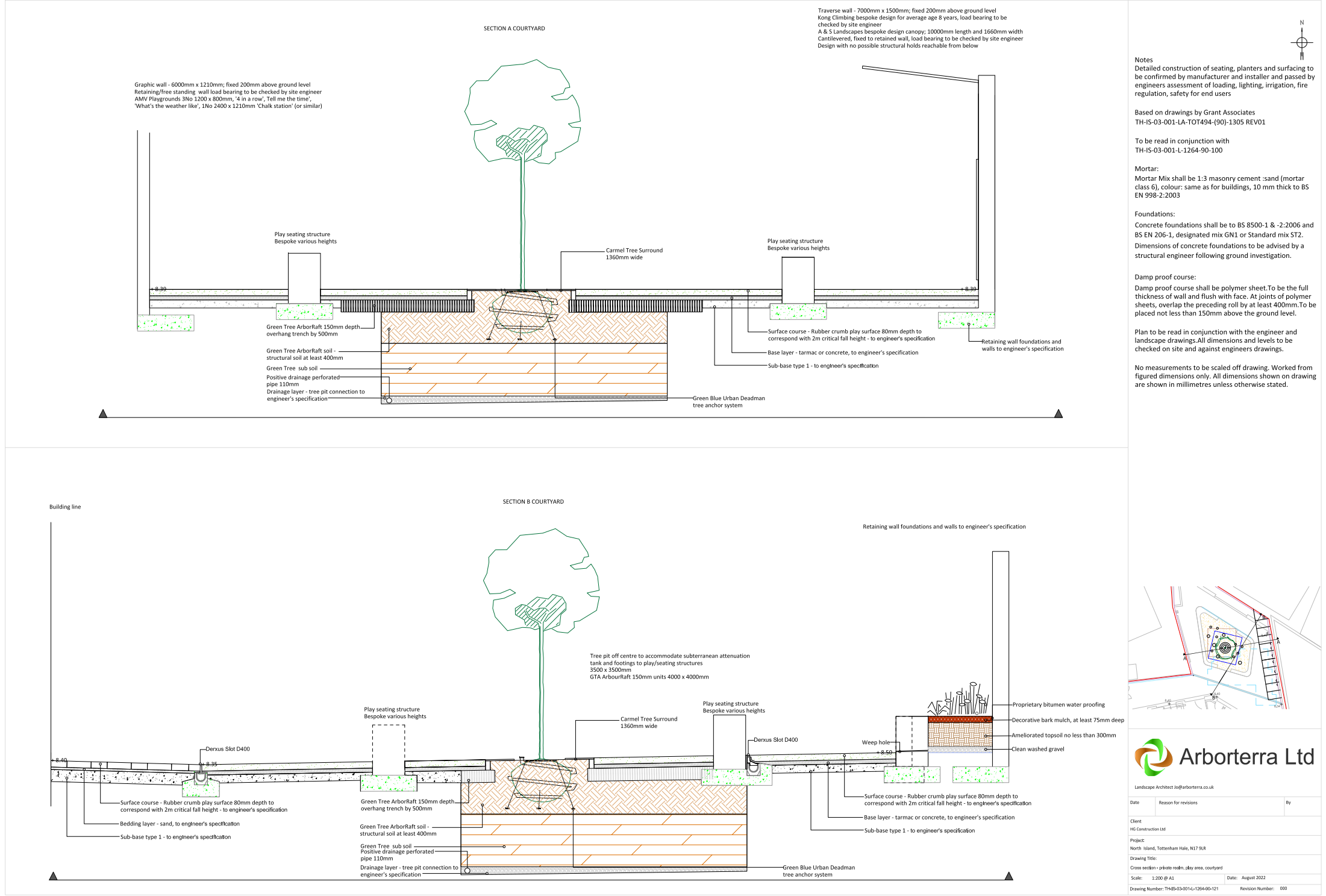
LEGEND (HARD WORKS)

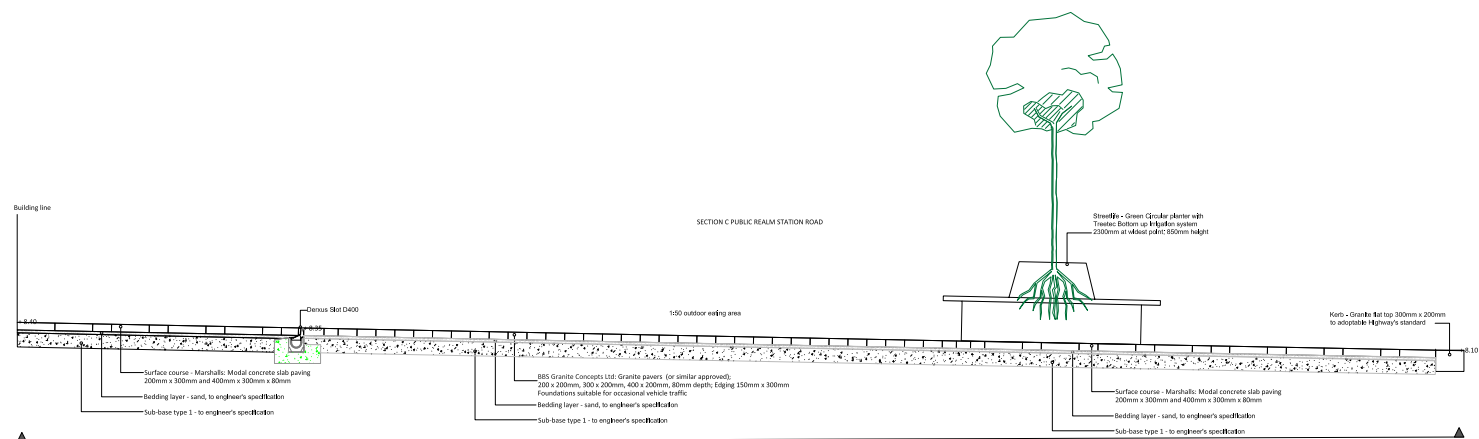
- Marshalls: Modal concrete slab paving 200mm x 300mm and 400mm x 300mm 50% midgrey granite textured and 50% light grey granite textured 80mm thick slabs; anti stain treatment before use
- BBS Granite Concepts Ltd: Large unit granite paving Alpendurada grey Light Blocks with Bush Hammered Finish. Mix of 400mm x 300mm and 300mm x 200mm; foundations suitable for occasional vehicle traffic
- Hardscape: granite sett; grey (or similar approved); 200 x 100 x 80mm
- BBS Granite Concepts Ltd: Preto Perola Granite pavers; bush hammered; Grey (or similar approved) 100mm various lengths; edging around building
- Soft surfaces: Two colours, earth yellow and eggshell; Surfacing requirements corresponding to a fall height of ≤ 2000mm
- Streetlife: Green Circular Benches and planter
- Streetlife: Shrub Tube Square 2000 x2000mm
- Tree grille: Carmel Tree Surround 1350mm frame
- Tree grille: Castle Tree Grille 1800mm
- Tree pit: Green Blue Urban RootSpace or GTA ArbourRaft
- Marshalls: Derrux Slot D400
- Attenuation tank - installed
- Wrekin: Block paving recessed cover C291M/060060 SW
- Wrekin: Ductile cover B125 450mm DMS1B2/45D SW
- Wrekin: Block paving recessed cover C291M/060060 FW
- Wrekin: Ductile cover B125 450mm DMS1B2/45D FW
- Water source - boxed protected from frost)

Notes
Plan to be read in conjunction with the engineer and landscape drawings.
No measurements to be scaled off drawing. Worked from figured dimensions only.
All dimensions shown on drawing are shown in millimetres unless otherwise stated.
All dimensions and levels to be checked on site. Landscape Architect to be notified immediately of any discrepancies prior to the commencement of works.

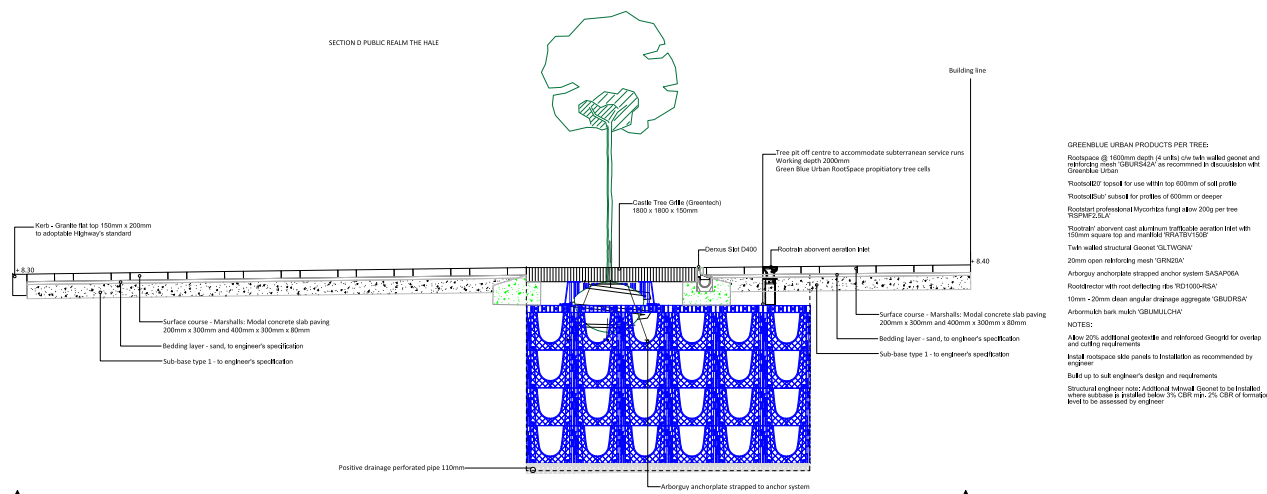
**Arborterra Ltd**
Landscape Architect arborterra.co.uk

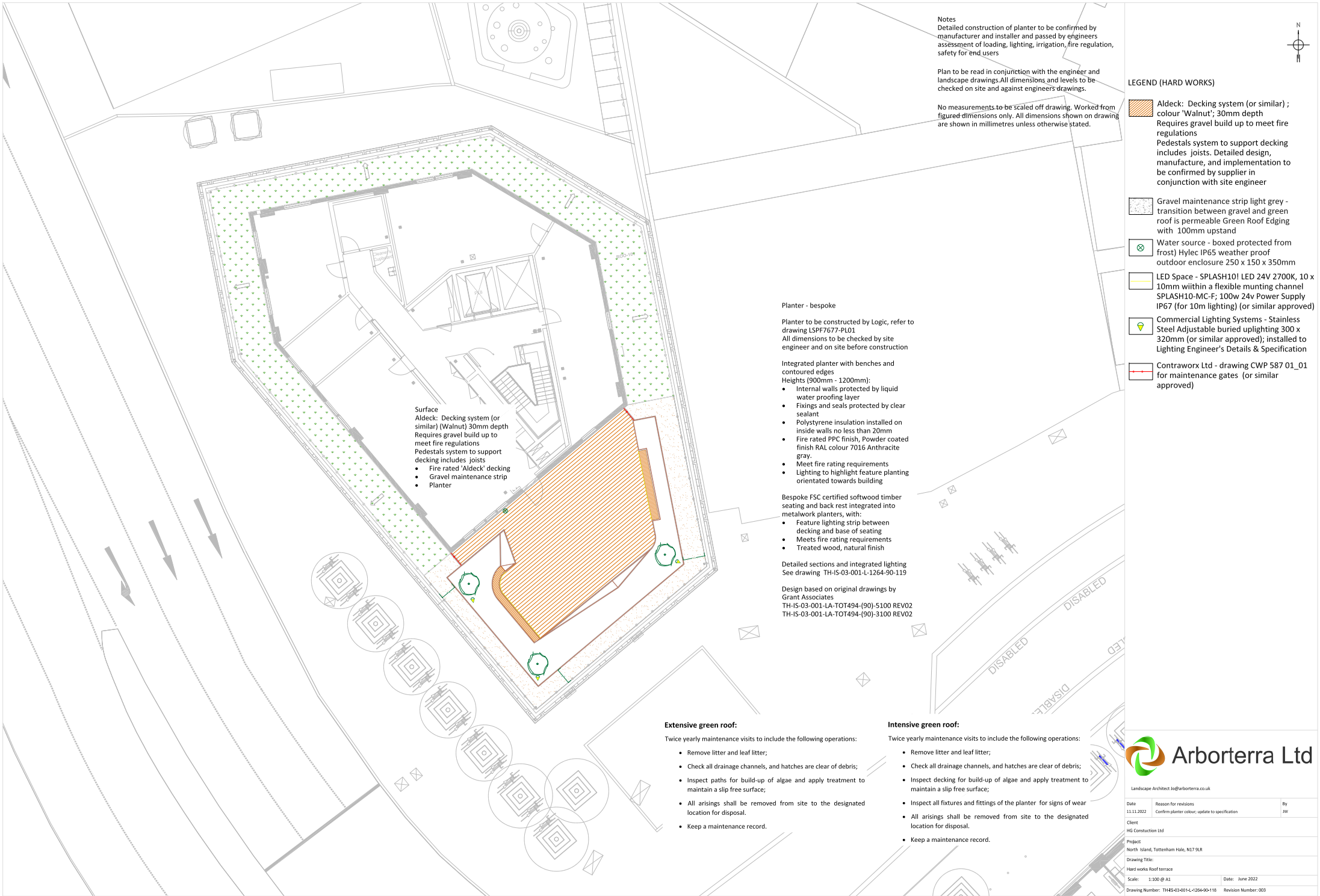
Date	Reason for revision	Re
14.11.2022	Design to reflect site plan	01
Client		
HD Construction Ltd		
Project		
North Island, Tottenham, North, N17 6JL		
Drawing Title		
Hard works		
Scale	1:1000 @ A3	Date: October 2021
Drawing Number	TH-03-001-L-1264-90-121	Revision Number: 001





No measurements to be scaled off drawing. Worked from figured dimensions only. All dimensions shown on drawing are shown in millimetres unless otherwise stated.





Notes
Detailed construction of planter to be confirmed by manufacturer and installer and passed by engineers assessment of loading, lighting, irrigation, fire regulation, safety for end users

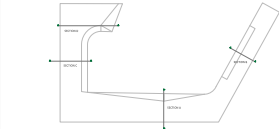
Based on drawings by Grant Associates
TH-IS-03-001-LA-TOT494-(90)-5100 REV02
TH-IS-03-001-LA-TOT494-(90)-3100 REV02

Plan to be read in conjunction with the engineer and landscape drawings. All dimensions and levels to be checked on site and against engineers drawings.

No measurements to be scaled off drawing. Worked from figured dimensions only. All dimensions shown on drawing are shown in millimetres unless otherwise stated.

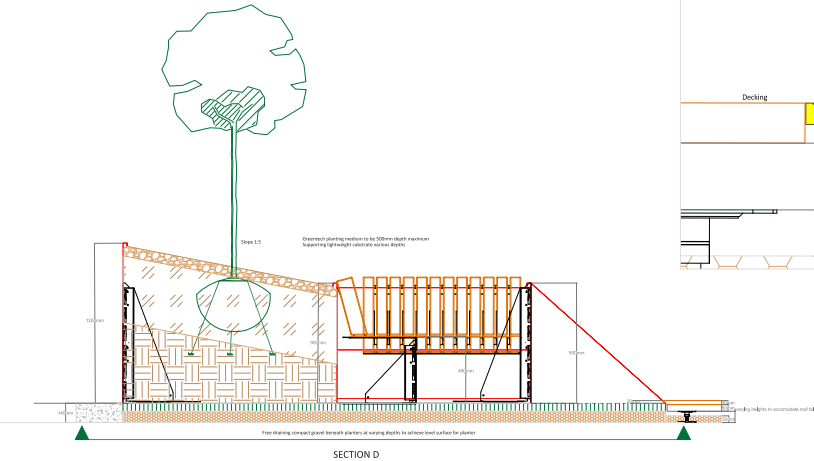
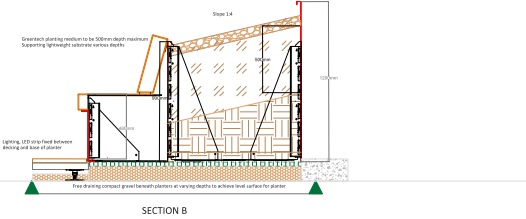
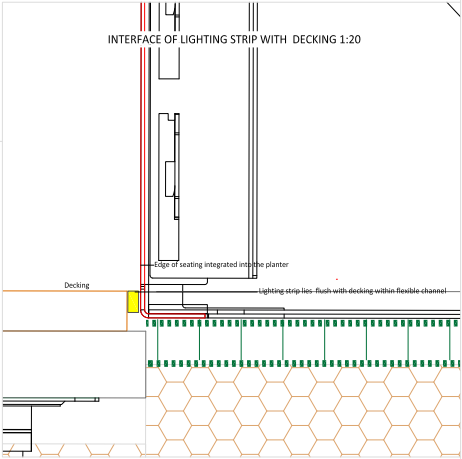
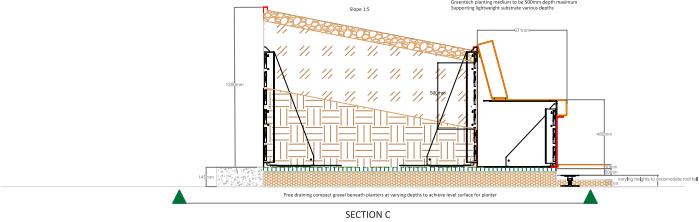
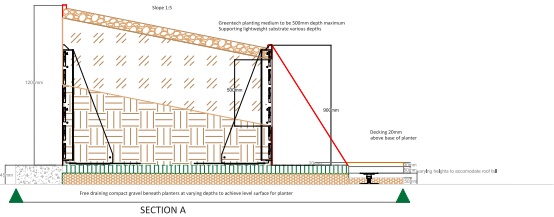
LEGEND (HARD WORKS)

-  Aldeck: Decking system (or similar) colour 'Walnut'; 30mm depth
Requires gravel build up to meet fire regulations
Pedestals system to support decking includes joists Detailed design, manufacture, and implementation to be confirmed by supplier in conjunction with site engineer
-  Gravel maintenance strip light grey
-  Planter - bespoke
Based on Logic drawing LSPF7677-PL01 integrated planter with benches and contoured edges
Heights (900mm - 1200mm):
 - Fire rated PPC finish, Powder coated finish RAL colour 7016 Anthracite gray.
 - FSC certified UK softwood timber slats to form integrated bench seating modules and back rest
 - Meet fire rating requirements
 - Lighting to highlight feature planting orientated towards building
-  Bespoke FSC certified UK softwood timber seating and back rest integrated into metalwork planters, with:
 - Feature lighting strip between decking and base of seating
 - Meets fire rating requirements
 - Douglas Fir, natural finish
-  Radmat - D80 Drainage Board 60mm
Geo textile membrane between soil and drainage mat and drainage mat and gravel below
-  Plati-Mat - Deadman Fixing Kit, Plati-Mat, RF1RDMP (or similar) weighted by 3 kerbstones
-  75mm depth gravel mulch (mix aggregate max size 20mm)
-  Greentech - Green-tree Intensive Roof Garden Substrate 500mm maximum (or similar)
-  Greentech - Green roof light weight subsoil, varying depths (or similar)
-  Type 3 compacted to support planters (or similar)
-  LED Space - SPLASH10! LED 24V 2700K, 10 x 10mm within a flexible munting channel SPLASH10-MC-F; 100w 24v Power Supply IP67 (for 10m lighting) (or similar approved)
-  Contraworx Ltd - drawing CWP 587 01_01 for maintenance gates (or similar approved)



Landscape Architect Jo@arborterra.co.uk

Date	Reason for revisions	By
14.11.2022	updates to planter specification	JW
Client		
HG Constuction Ltd		
Project		
North Island, Tottenham Hale, N17 9LR		
Drawing Title:		
Hard works cross sections roof terrace planter		
Scale:	1:200 @ A1	Date: June 2022
Drawing Number:	TH45-03-001-LA-TOT494-001-19	Revision Number: 002



ATTACHMENT 2: BURO HAPPOLD IMPORT CRITERIA FOR CAPPING LAYER SOILS

Appendix H Suggested Imported Material Criteria

1 Imported Material Criteria

1.1 General

All material that is imported into the Plot, including geotechnical fill, topsoil and subsoil for landscaping, is required to meet the parameters set out in this specification.

1.2 Landscaping Soil Specification

1.2.1 Existing Plot topsoil

It is not anticipated that any topsoil/subsoil that is presently on the Plot will be retained within soft landscaping areas or tree pits due to its chemical and physical composition.

If any material is to be retained and reused, it should be stripped and stored in stockpiles which are separate from other stockpiled soils. Topsoil must not be stockpiled for longer than two years, after two years the stockpile is to be excavated, reconditioned and formed into a new stockpile.

The existing Plot topsoil has not been characterised to date and will therefore require characterisation as outlined below.

1.2.2 Topsoil and Subsoil Specification

All topsoil and subsoil to be used as part of the landscaping areas must comply with the physical, biological and chemical parameters set out in the following sections.

All topsoil must comply with British Standard 3882:2015 (Ref 3) as a multipurpose soil (as set out in Table 1 of that Standard). The soil should be a clay loam as defined in BS3882:2015. The soil is to have a defined granular or blocky structure and be free from non-soil material i.e. brick, other building materials, wastes, hydrocarbons, plant matter, roots and rhizomes of perennial weeds and any other foreign matter or material or substance that would render the topsoil unsuitable for use. The physical parameters of the material must comply with those set out in Table 1 below.

Table 1 Physical Parameters

Determinand	Unit	Sub soil Value	Topsoil Value
Clay (less than 0.002mm)	%	5 - 40	5 – 27
Silt (0.002 - 0.06mm)	%	5 - 60	5 -45
Sand (0.06 - 2.00mm)	%	20 – 65	50 - 90
Max. Stone Content (2 - 50mm)	% by weight	<50	<35
Max. Stone Size in any dimension	mm	75	30

3.2 Soil Quality Parameters

Topsoil must contain sufficient nutrients that it allows plant growth as detailed in Table 2.

Table 2 Soil Quality Parameters (suitability as a growing medium related)

Determinand	Unit	Concentration
pH value	pH units	5.0 - 8.0
Electrical Conductivity (1:2.5 extract)	μS/cm	100 to 1500
Organic Matter	%	4.0 – 15.0
Total Nitrogen	%	>0.2
Extractable Phosphorus	mg/l	>26
Extractable Potassium	mg/l	>240
Extractable Magnesium	mg/l	>50

1.3 Chemical (contamination related) Parameters

Table 3 below details the chemical compounds that require testing for each sample and also details the maximum permissible average concentration of those compounds (i.e. the US⁹⁵ average value for an imported material batch must not exceed these values for the material to be accepted). A batch is considered to be a material that has the same origin (i.e. is made up of the same material and/or is from the same source location).

In the first instance the values have been derived from the LQM Sutable for Use Levels (S4UL) (Ref 1) or the phytotoxic values (Ref 3) and with lead C4SL values have been used (Ref 2).

Table 3 - Chemical (contamination related) Parameters

Determinand	Concentration (mg/kg)	Determinand	Concentration (mg/kg)
Arsenic	40 ¹	Cadmium	85 ¹
Chromium (total)	910 ¹	Lead	310 ²
Mercury	56 ¹	Selenium	430 ¹
Boron	11000 ¹	Copper	200 ³
Nickel	60 ¹	Zinc	300 ³
Naphthalene	2.3 ¹	Benzo[a]anthracene	11 ¹
Acenaphthylene	2900 ¹	Chrysene	30 ¹
Acenaphthene	3000 ¹	Benzo[b]fluoranthene	3.9 ¹
Fluorene	2800 ¹	Benzo[k]fluoranthene	110 ¹
Phenanthrene	1300 ¹	Benzo[a]pyrene	3.2 ¹
Anthracene	31000 ¹	Indeno[123-cd]pyrene	45 ¹
Fluoranthene	1500 ¹	Dibenzo[ah]anthracene	0.31 ¹
Pyrene	3700 ¹	Benzo[ghi]perylene	360 ¹
TPH aliphatic >C5-C6	42 ¹	TPH aromatic >C5-C7	370 ¹
TPH aliphatic >C6-C8	100 ¹	TPH aromatic >C7-C8	860 ¹
TPH aliphatic >C8-C10	27 ¹	TPH aromatic >C8-C10	47 ¹
TPH aliphatic >C10-C12	130 ¹	TPH aromatic >C10-C12	250 ¹
TPH aliphatic >C12-C16	1100 ¹	TPH aromatic >C12-C16	1800 ¹

TPH aliphatic >C16-C35	65000 ¹	TPH aromatic >C16-C21	1900 ¹
Free cyanide	760 ¹	TPH aromatic >C21-C35	1900 ¹
Benzene	0.38	Toluene	869 ¹
Ethylbenzene	83 ¹	Xylene	79 ¹
		Asbestos	No detectable fibres

¹ Value derived from LQM Suitable for Use Levels (Ref 1)

² Value derived from Category 4 Screening Levels (Ref. 2)

³ Value derived from British Standard BS3882:2007 (Ref 3)

1.4 Testing regimes

1.4.1 Material recovered from the Plot

Topsoil material recovered from the Plot and stockpiled will be subject to representative sampling of the stockpile and testing. A minimum of three tests per stockpile will be taken after which one test per 250m³ will be taken. Topsoil that does not meet specification will be rejected and will not be used on the Plot.

1.4.2 Material imported from off-site sources

Topsoil material imported from off-site will be tested either at the source site or in-situ once the topsoil has been placed. Testing will be at a frequency of one sample per 250m³ or a minimum of 5 samples across the Plot (whichever is the greater).

If testing shows that some areas of topsoil fail the criteria the contractor will be required to source material from a different site or, if already placed, excavate and remove these areas and replace them with fresh imported topsoil with further sampling of the fresh imported material. Failure of the criteria will be determined by the engineer. Topsoil that does not meet specification will be rejected and will not be used on the Plot.

1.4.3 Validation of materials

In addition to the laboratory sampling as detailed above, a suitable depth of material (450mm) will be verified by the excavation of topsoil/subsoil following placement, prior to planting. A photographic record of depth with scale indicator (tape measure) will be provided along with a plan of locations.

Appendix References

1. LQM/CIEH. 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.
2. Department for Environment, Food and Rural Affairs. SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document. March 2014
3. British Standards Institution. BS3882:2015. Specification for topsoil and requirements for use. 2015

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ATTACHMENT 3: DISCOVERY STRATEGY

Symbiotic Solutions Ltd
Unit A4
Coggeshall
CO6 1RZ
United Kingdom

For the attention of Phil Taylor

27th December 2022
Our Ref: P600/WB/AJ/001

To Phil Taylor

North Island, Tottenham Hale, N17 9JZ – Watching Brief Statement

Verification Report – Watching Brief

During the construction works at North Island, Tottenham Hale a watching brief was implemented throughout the groundworks, and we can confirm that no unexpected contamination was identified.

Yours faithfully
For and on behalf of HG Construction Ltd



Adam James
Project Manager
adamjames@hgconstruct.co.uk
T: 01462 454444

ATTACHMENT 4: WATER PIPE



Photograph A4.1 Main water connection showing use of barrier pipe (brown line on pipe).

1. ALL PRESSURE IS TO BE FULLY PRESURE TESTED AS PER SPEC. BEFORE BEING COMING ON.
2. IT IS MECHANICAL CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL PRESSURE VESSELS ARE FULLY TESTED AS PER SPEC.
3. IT IS THE MECHANICAL CONTRACTORS RESPONSIBILITY TO CAP ALL PRESSURE BOUNDING CONNECTION TO ENSURE NO LEAK OR GROUND-LEVEL LOSS OF PRESSURE.
4. IT IS THE MECHANICAL CONTRACTORS RESPONSIBILITY TO ENSURE ALL CONNECTIONS TO BE RETAINED.
5. ALL PRESSURE VESSELS TO BE DISCHARGED TO DRAINAGE OR TO ENTER WATER LOCATED IN THE SERVICE AREA ON EACH FLOOR.
6. ALL PRESSURE VESSELS TO BE SPECIFICATED TO BE AS FOLLOWS:
 - COPPER TO BE USED 2008-10-15 SPEC STANDARD OR SIMILAR APPROVED FOR CLARITY ON ALL PIPE SIZES PLEASE REFER TO SCHEMATICS
7. CONTRACTOR TO INCLUDE HOT REPAIR, STANFORD TACK, BACKSIGHTING AND ALL NECESSARY MATERIALS.
8. SPRINKLER DESIGN BY OTHERS. CAP PACKAGE
9. ALL PIPES SHOULD BE INSTALLED IN COMPLIANCE WITH BUILDING REGULATION

1. DRAIN POINTS TO BE FITTED TO ALL LOW POINTS & ALL HIGH POINTS TO BE FITTED WITH AN VENT.
2. ALL PIPING TO BE PRESSURE TESTED FOR LEAKS PRIOR TO LAYOUT OF ALL PIPING (WITHIN EXTERNAL WALLS TO BE IN PIPE IN PIPE WITHIN COLOUR CODED CONDUIT).
3. LOWER VOLTAGE PIPING (SPECIFICATION TO BE AS FOLLOWS: CARRIAGE STEEL OR COPPER TO BS EN 10274:2004+A1:2010 STANDARD OR BENT APPROVED).
4. FOR CLARITY ON ALL PIPE SIZES PLEASE REFER TO MECHANICAL DRAWINGS.

PIPE EXTERNAL (OUTER) (mm)	PHENOLIC FOAM INTERNAL SPACE (mm)	PHENOLIC FOAM SUSCEPTOR SPACE (mm)	INTERNAL FIBRE CONTENT SPACE (mm)	INTERNAL FIBRE SUSCEPTOR SPACE (mm)
16	50	50	50	50
20	50	50	50	50
26	50	50	50	50
32	50	50	50	50
40	50	50	50	50
50	50	50	50	50
63	50	50	50	50
80	50	50	50	50

2. DO NOT SCALE.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER ARCHITECTS, STRUCTURAL, ENGINEERS AND BUILDING SERVICES ENGINEERS DRAWINGS, SPECIFICATIONS AND SCHEDULES.
4. ALL DIMENSIONS IN MILLIMETERS.
5. ALL FINAL SETTING OUT TO BE BY ARCHITECT.
6. FOR ALL DIMENSIONS REFER TO THE DRAWING OR SCHEDULES.
7. ALL BOVS MAIN RISER PIPEWORK TO BE INSTALLED IN A SEPARATE RISER TO THE PRIMARY LTR RISERS TO AVOID ANY TRANSFER OF HEAT BETWEEN PIPEWORK.
8. ALL WATER METERS TO BE LOCATED IN THE SERVICE RISERS ON EACH FLOOR AS VALUED WITH THAMES WATER.
9. ANTI-SURGE AIRGATES TO BE INSTALLED AT THE TOP OF ALL BOVS RISES AS DETAILED ON SPECIFICATIONS, CARBON STEEL INSULATION TAP.
10. FIRE GLASS/COLLAR SHALL BE PROVIDED WHEREVER THE PIPE WORK PENETRATES THROUGH THE WALL. SIMILARLY FIRE DAMPER SHALL BE PROVIDED WHERE OUTCROWK PENETRATES THE FIRE WALL.

	LOW TEMPERATURE HOT WATER FLOW PIPEWORK
	LOW TEMPERATURE HOT WATER RETURN PIPEWORK
	CAT 5 WATER SUPPLY PIPEWORK
	BOOSTED COLD WATER SUPPLY PIPEWORK
	MAINS WATER SUPPLY
	FIRE SLEEVE/COLLAR
	GAS PIPEWORK
	DRAINAGE PIPEWORK
	TEST DRAIN PIPEWORK
	ASH-PIFLOW
	ASH-RETURN
	BOILER FLUE
	NATURAL VENTILATION DUCTWORK (FIRE RATED DUCT)
	WET RISER DRAIN PIPEWORK
	WET RISER PIPEWORK
	OIL PIPEWORK
	SPRINKLER PIPEWORK (BY OTHERS)

T/A	TO ABOVE
T/B	TO BELOW
F/B	FROM BELOW
F/A	FROM ABOVE
B/W	BOSTED COLD WATER
W/R	WET RISER PIPE
W/T	WET RISER PIPE
W/RD	WET RISER DRAIN
M/W	MAINS WATER SUPPLY
L/THW	LOW TEMPERATURE
L/THR	LOW TEMPERATURE
L/V	LANDING VALVE
L/L	LOW LEVEL
H/L	HIGH LEVEL
P-SPR	SPRINKLER PIPE
TP	TP
AD	ACCESS DOOR

C04	04.08.20	INSTALLATION DRAWING	AA
C02	18.03.20	INSTALLATION DRAWING	AA
C02	31.01.20	INSTALLATION DRAWING	AA
C01	19.10.21	INSTALLATION DRAWING	AA
T03	27.08.21	TENDER ISSUE	AA
T02	28.07.21	TENDER ISSUE	AA
T01	28.05.21	TENDER ISSUE	AA
Rev	Date	Description	CRJ



TOTTENHAM HALE

Drawing No: TH-IS-03-001-M-20016-56-1GF

Scale (0-10)	Model Manager	Project
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1 : 50	AA	SMC
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WATER SERVICES NOTES

1. ALL PIPING IS TO BE FULLY PRESSURE TESTED AS PER SPEC BEFORE BEING CONCEALED.
2. IT IS THE MECHANICAL CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL PIPING IS IN ACCORDANCE WITH THE CITY OF CHICAGO SPECIFICATIONS.
3. IT IS THE MECHANICAL CONTRACTORS RESPONSIBILITY TO CAP ALL PIPING DURING CONSTRUCTION TO ENSURE RISK OF CORROSION DURING CONSTRUCTION.
4. LATEST CONCURRENCE AND PLUMBING DETAILS CONNECTIONS TO BE REVEALED.
5. MECHANICAL CONDENSATE WATER TO DRAINAGE IS TO ENTER VIA A WATER MAIN LOCATED AT THE SERVICE (SEE EACH FLOOR).
6. MECHANICAL PIPING TO BE SPECIFICATED TO BE AS FOLLOWS:
 - COPPER TO BS EN 1059-3:2008-4:2010 STANDARD OR SILICA APPROVED EQUIVALENT
 - DR-11 OR ALL PIPE SHALL BE SCHEDULE 40 PIPE TO ACCOMMODATE DRAINAGE
7. CONTRACTORS TO INCLUDE IN THE BIDDING: EXISTING TANK, BOILER/HEAT EXCHANGER AND CONDENSATE PIPING (AS DETAIL ON DRAWING).
8. SPRINKLER DESIGN BY OTHERS, CAP PACKAGE
9. ALL PIPING SHALL BE INSTALLED IN COMPLIANCE WITH BUILDING REGULATION

LTHW SERVICES NOTES	
1.	DRAIN/POINTS TO BE FITTED TO ALL LOW POINTS & ALL HIGH POINTS WILL BE FITTED WITH AIR VENTS.
2.	ALL FIREWORKS TO BE PRESSURE TESTED FOR LEAKS FOR DURATION OF HOUR.
3.	ALL FIREWORKS WITH EXTERNAL, WHITE TO BE PIPE & PIPE WITH COLOUR COORDINATE.
4.	LTHW SERVICES FIREWORKS SPECIFICATIONS TO BE AS FOLLOWS:
	CARBON STEEL OR COPPER TO BS EN 10027/10028-1 STANDARD OR SIMILAR APPROVED
5.	FOR CLARITY ON ALL PIPE SIZES PLEASE REFER TO SCHEMATIC DRAWINGS.

PIPE DIAMETER (INTERNAL SPACE) (mm)	PHENOLIC FOAM (INTERNAL SPACE) (mm)	PHENOLIC FOAM (EXTERNAL SPACE) (mm)	MINERAL FIBRE (INTERNAL SPACE) (mm)	MINERAL FIBRE (EXTERNAL SPACE) (mm)
15	50	50	50	50
20	50	50	50	50
25	50	50	50	50
32	50	50	50	50
40	50	50	50	50
50	50	50	50	50
65	50	50	50	50
80	50	50	50	50

NOTES:

1. DO NOT SCALE.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER JACOBS & COMPANY, STRUCTURAL, ENGINEERS AND BUILDING SERVICES ENGINEERS DRAWINGS, SPECIFICATIONS AND SCHEDULES.
3. ALL DIMENSIONS IN MILLIMETERS.
4. ALL SETTING TO BE TO THE ARCHITECT.
5. FOR CLARITY ON ALL PIPE SIZES PLEASE REFER TO SCHEMATICS.
6. ALL BOWS MAIN RISER PIPEWORK TO BE INSTALLED IN A SEPARATE RISER TO THE PRIMARY LIFTW RISERS TO AVOID ANY TRANSFER OF HEAT BETWEEN PIPEWORK.
7. ALL WATER METERS TO BE LOCATED IN THE SERVICE RISERS ON A SEPARATE RISER TO THE PRIMARY LIFTW RISERS.
8. ANTI-SUCK VALVES TO BE INSTALLED AT THE TOP OF ALL BOWS RISERS AS DETAILLED ON SCHEMATICS. CARBON STEEL.
9. REFER TO TABLE.
10. FIRE SLEEVE/COLLAR SHALL BE PROVIDED WHEREVER THE PIPE WORK PENETRATES THE FIRE COMPARTMENT WALL. SIMILARLY, FIRE DAMPER SHALL BE PROVIDED WHEREVER OUTWORK PENETRATES THE WALL.

	LOW TEMPERATURE HOT WATER FLOW PIPEWORK
	LOW TEMPERATURE HOT WATER RETURN PIPEWORK
	CAT 5 WATER SUPPLY PIPEWORK
	BOOSTED COLD WATER SUPPLY PIPEWORK
	MANS WATER SUPPLY
	FIRE SLEEVE/COLLAR
	GAS PIPEWORK
	DRAINAGE PIPEWORK
	TEST DRAIN PIPEWORK
	ASH-PIFLOW
	ASH-RETURN
	BOILER FLUE
	NATURAL VENTILATION DUCTWORK (FIRE RATED DUCTWORK)
	WET RISER DRAIN PIPEWORK
	WET RISER PIPEWORK
	OIL PIPEWORK
	SPRINKLER PIPEWORK (BY OTHERS)

T/A	TO ABOVE
T/B	TO BELOW
F/B	FROM BELOW
F/A	FROM ABOVE
B/C/W	BOOSTED COL.
W/R	WET RISER PIPE
W/T	WET RISER PIPE
W/RD	WET RISER DR.
M/W	MAINS WATER
LTHW	LOW TEMPERA.
LTHWR	LOW TEMPERA.
LV	LANDING VALVE
LL	LOW LEVEL
HL	HIGH LEVEL
P-SPR	SPRINKLER PIPE
TP	TP
AD	ACCESS DOOR

Rev	Date	Description	Org	A
Client				

Title of Drawing
PLANT FLOOR LEVEL - MECHANICAL PIPEWORK
SERVICES LAYOUTS

Scale @ A0 1 : 50	Model Manager AA	Project Manager SMC
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ISO 9001 is the requirement of a QMS, and since, for all of the companies, implementation of ISO 9001 is not enough to ensure the quality of the products, the companies have implemented other standards, such as ISO 14001, ISO 26000, and ISO 22000.

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