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REMEDIATION STRATEGY LETTER WILSON ROAD, HUYTON

1. BACKGROUND

1.1. INTRODUCTION AND OBJECTIVES

E3P has been instructed by DJL Construction NW Ltd (the Client) to develop a Remediation Strategy for the proposed commercial development on land to the east of Wilson Road, Huyton.

This document has been prepared to address Condition 19B with respect to the approved planning application (Ref: 25/00205/FUL).

The development of the risk management strategy for the subject sites includes the following tasks:

- ✦ Identification of the relevant pollutant linkages;
- ✦ Review of site characteristics;
- ✦ Development of remedial objectives;
- ✦ Selection of appropriate remedial technology; and
- ✦ Development of remedial strategy.

For the avoidance of doubt, this document relates solely to contaminated land matters associated with Planning Condition 19B and does not address any geotechnical considerations. The following assessments will be required under a separate report cover:

- ✦ Asbestos Management Plan
- ✦ Geotechnical Earthworks Specification
- ✦ Settlement Analysis
- ✦ Surface Water Management Plan
- ✦ Gas Protection Design Report
- ✦ Drill and Grout Specification





1.2. PREVIOUS WORKS

The following phases of Geoenvironmental investigations and assessments have previously been carried out at the site:

- ✦ **Jomas Associates** – Desk Study/Preliminary Risk Assessment and Coal Mining Risk Assessment Report (Ref: P4131J2476/SC), dated 16th February 2022.
- ✦ **E3P** – Phase I Geoenvironmental Site Assessment (Ref: 18-824-R1-1), dated 21st May 2026.
- ✦ **E3P** – Phase II Geoenvironmental Site Assessment (Ref: 18-824-R2-1), dated 21st May 2026.

To inform the assessment of the potential risk to contaminated land within the context of the proposed commercial development and to inform the preparation of the remediation strategy, the pertinent points from the above Geo-environmental Investigation reports are summarised within Section 1.5.

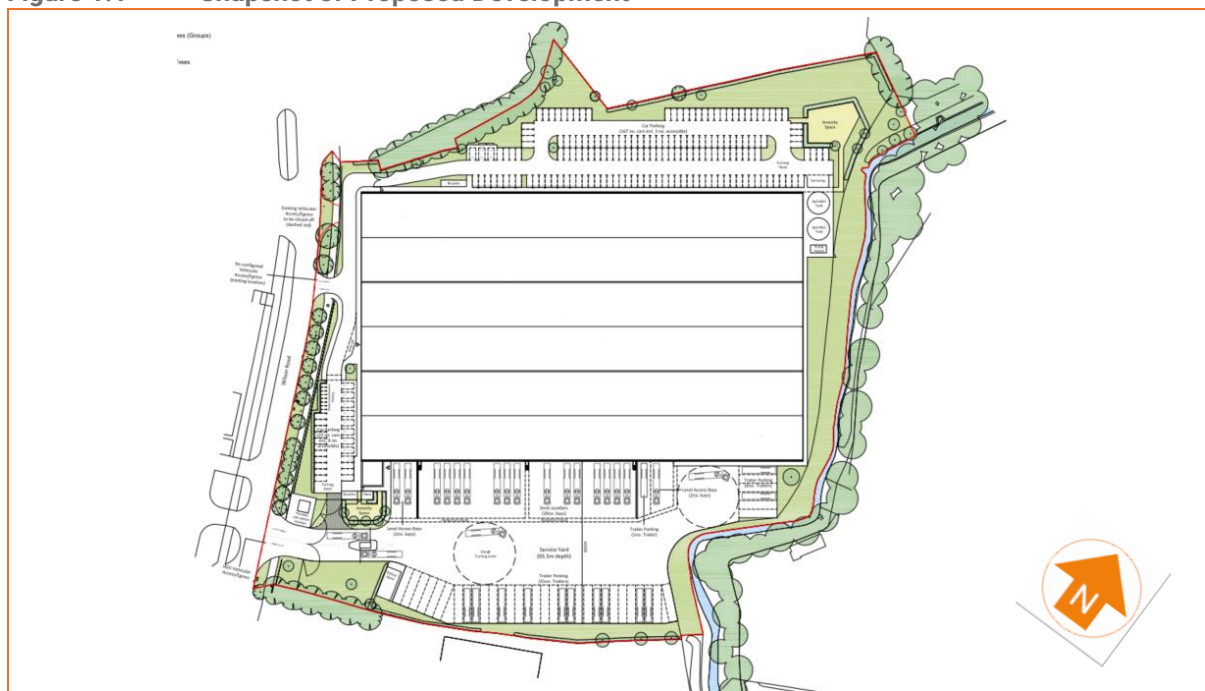
For the avoidance of any doubt, the above reports should be read both as a precursor to and in conjunction with this document.

1.3. REDEVELOPMENT PLAN

DJL Construction NW Ltd intends to construct a steel-framed industrial warehouse building with associated access, service yard, parking and landscaping. Drawing 18-824-002 (Appendix I) identifies the proposed development layout.

A snapshot of the Proposed Development Scheme is indicated in Figure 1.1.

Figure 1.1 Snapshot of Proposed Development





1.4. SUMMARY OF PARTIES INVOLVED

Function/interest	Name of Party
Local Planning Authority	Knowsley Metropolitan Borough Council
Developer	DJL Construction NW Ltd
Geoenvironmental Consultant	E3P
Main Contractor	TBC
Remediation/Enabling Works Contractor	TBC
Human Health Regulator	Knowsley Metropolitan Borough Council
Controlled Waters and Waste Regulator	Environment Agency
Highways Adoption Authority	Knowsley Metropolitan Borough Council

1.5. SITE SUMMARY

Table 1.1 Site Summary

Site Address	Wilson Road, Huyton, Liverpool, L36 6AE	
Occupancy/Use	The subject site is an irregular-shaped parcel of land located east of Liverpool and is currently occupied by John Mason International Movers and associated car and lorry parking.	
	Site activities at John Mason International Movers include international shipping, packing, loading containers, service and collection. The northern area of the site is used for vehicle/HGV and equipment storage. The east and southeast of the site is currently used to store caravans.	
Environmental Setting	Superficial Geology	Glacial Till – Diamicton (CLAY, SAND, GRAVEL)
	Bedrock Geology	Pennine Lower Coal Measures Formation (West) – MUDSTONE, SILTSTONE and SANDSTONE
		Pennine Middle Coal Measures Formation (North) – SANDSTONE
		Pennine Middle Coal Measures Formation (North) – MUDSTONE, SILTSTONE and SANDSTONE.
		Etruria Formation (East) – MUDSTONE, SANDSTONE and CONGLOMERATE.
	Hydrogeology	The site is underlain by a Secondary Undifferentiated superficial aquifer and a Secondary A bedrock aquifer. The site is not located within a groundwater source protection zone, however there is a Zone 3 - Total Catchment 225 m southeast of the site. There are no groundwater/potable abstractions within 1 km of the site.





Environmental Setting ...Continued	Hydrology	Prescot Brook (Logwood Mill Brook) runs along the eastern site boundary.
	Flood Risk	The site is predominantly located within a currently defined "Flood Risk Zone 1" with a low risk of flooding from rivers. However the land surrounding Logwood Mill Brook to the east is within "Flood Risk Zone 3", defined as an area with a high risk of flooding from rivers.
Site History	The earliest historical mapping dated 1849-1850 records Logwood Farm and Logwood Corn Mill in the central sector. The Corn Mill is no longer recorded by 1892. By 1974, Logwood Farm is no longer present on-site and a large warehouse is recorded in the south of the site. Additional structures are recorded in the northwestern sector of the site, including a Canning Factory. By 1977, two further structures are present to the south of the warehouse and an electricity substation is recorded in the northwest. The buildings in the north and to the south of the warehouse are no longer recorded by 2015. The warehouse is present to the current day.	
Landfill Sites and Waste Sites	No active landfill sites have been identified within 250 m of the site boundary. However, there is one historical landfill EA/NRW records 88 m NW of the site at Brickfields, Knowsley, Merseyside for inert waste. There are ten historical waste sites within 250 m of the site. Furthermore, there are 19 licensed waste sites within 250 m of the site. Forty-three waste exemptions have been identified within 250 m of the site.	
Radon	The site is situated in an area where less than 1% of homes are above the "Action Level". Therefore, the BGS reports that radon protective measures are not necessary for the construction of new dwellings or extensions.	
Ground Conditions	Made Ground – GL–5.40 m bgl Made Ground was encountered in all exploratory hole locations to a maximum proven depth of 5.40 m bgl (RB103). However, Made Ground was generally present to a depth of less than 2.00 m bgl. Typically, the Made Ground comprises greyish brown sandy gravel of mudstone, sandstone and limestone from ground level. In the majority of locations, this is underlain by dark brown slightly sandy gravelly clay extending to a proven depth of 2.00 m bgl (WS106, WS107, WS108).	
	Reworked topsoil, comprising sandy gravel or gravelly sand, was recorded at three locations (WS104, WS106, WS108).	
	Concrete was encountered at four locations (WS101, WS112A, RB102, RB105) from ground level to a maximum depth of 0.35 m bgl (WS101). WS112B was positioned on a raised platform within the warehouse and encountered concrete to a depth in excess of 0.40 m bgl, it was not possible to penetrate the full depth of the concrete.	
	Superficial – 0.80–5.45 m bgl Natural superficial deposits were identified within all exploratory hole locations at a depth of between 0.80 – 5.45 m bgl (WS108), with the exception of RB103 where the Made Ground deposits were directly underlain by bedrock.	





Ground
Conditions
...Continued

The natural deposits primarily consisted of either sandy CLAY or sandy gravelly CLAY, proven from depths of between 0.80–5.45 m bgl. Cohesive deposits generally ranged in consistency and strength, varying from firm low strength to very stiff high strength.

A band of COAL was encountered within the cohesive deposits in WS109 at 1.60 – 1.80 m bgl.

Brown gravelly fine to coarse SAND was identified within four exploratory locations, locally interbedded within the cohesive deposits between 0.30–4.00 m bgl. Where deposits were identified, the stratum was noted at a thickness of between 0.30–0.70 m and the soils were recorded to be loose.

Bedrock Geology – 1.70 – 40.00 m bgl

Bedrock was identified within all of the rotary boreholes and two of the window sample boreholes at depths of between 1.70 – 40.00 m bgl. Rockhead was encountered at depths of between 1.70 m and 3.10 m bgl.

The bedrock generally comprises red/grey SANDSTONE, or grey MUDSTONE with the presence of MUDSTONE, SANDSTONE and SILTSTONE bands or coal traces.

Coal seams were identified within RB101 between 3.80 – 4.90 m bgl, RB102 between 3.00 – 3.60 m bgl, and multiple seams within RB105 between 6.20 – 7.00 m bgl, 7.60 – 8.50 m bgl, 15.10 – 15.70 m bgl, and 21.40 – 22.30 m bgl.

Groundwater

Groundwater strikes were recorded in the natural superficial deposits within three of the exploratory hole locations, between 2.00–2.50 m bgl.

Subsequent monitoring completed to date has recorded groundwater between 0.60–2.94 m bgl.

Visual/Olfactory Evidence of Contamination

No visual or olfactory evidence of contamination was encountered during the ground investigation.





2. CONTAMINATION RISK ASSESSMENT

2.1. BACKGROUND

E3P has completed a Tier 2 Qualitative Contaminated Land Risk Assessment to determine the potential risk to human health, controlled waters, and the wider environment.

This assessment is documented in full within the E3P Geoenvironmental Site Assessment report and, for clarity, is summarised in the following sections of this document.

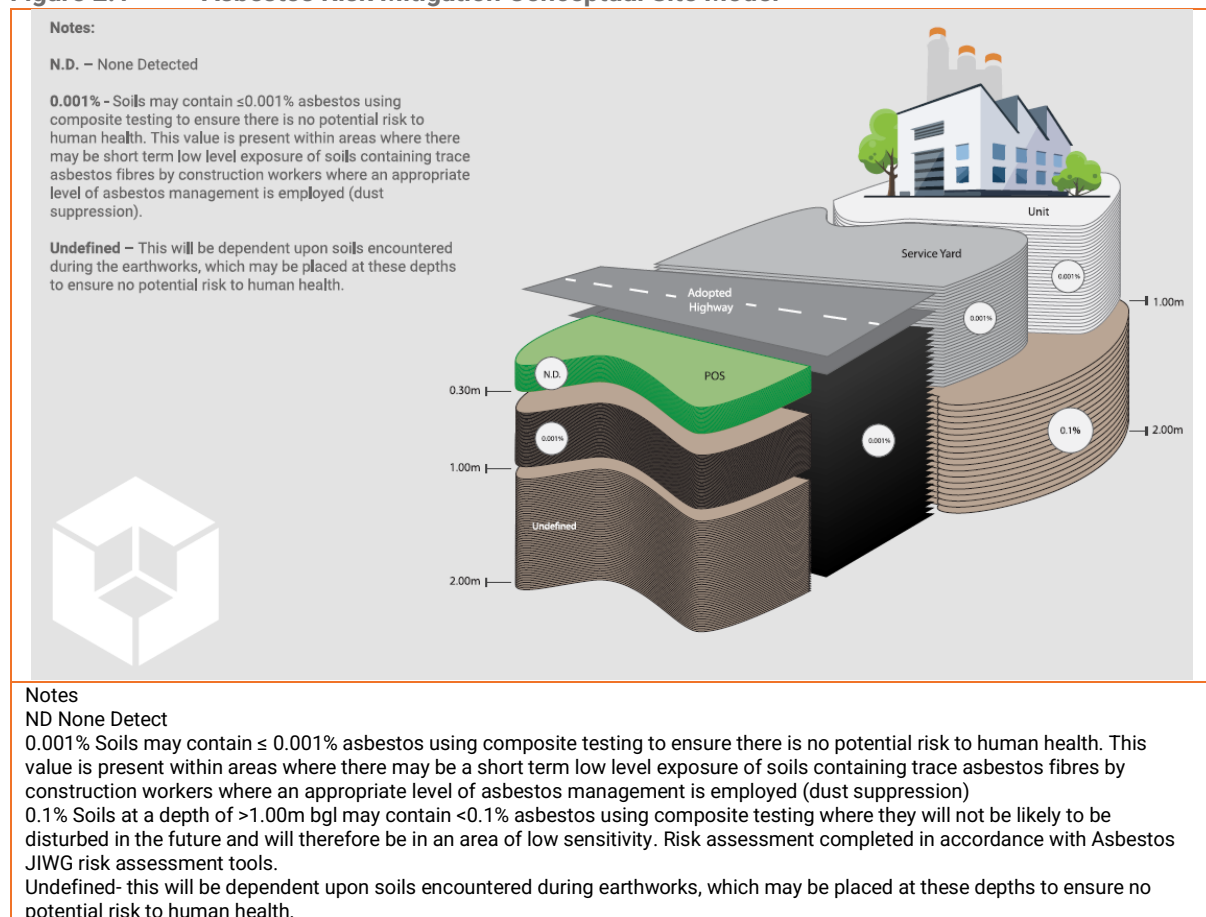
2.2. HUMAN HEALTH RISK SUMMARY

Laboratory analysis identified trace amosite asbestos fibres (<0.001% wt/wt) in Made Ground at WS103, and chrysotile asbestos at trace levels in WS107 (<0.001% wt/wt) and at 0.069% wt/wt in shallow Made Ground at WS112A.

The main exposure pathway relates to fibre/dust inhalation.

Impacted soils should be managed in accordance with the asbestos risk mitigation conceptual site model presented in Figure 2.1. It should be assumed that asbestos fibres are present throughout the Made Ground, therefore it is recommended that any enabling works resulting in ground disturbance be completed in accordance with an Asbestos Management Plan with suitable control measures implemented (e.g. appropriate PPE, RPE and air monitoring).

Figure 2.1 Asbestos Risk Mitigation Conceptual Site Model





No visual signs of asbestos-containing materials (ACMs) were encountered during the ground investigation. However due to their age, asbestos is likely to be present within the existing structures.

A pre-demolition asbestos survey will be required within all existing buildings within the site boundary.

No exceedances for heavy metals, TPH, or PAH were identified when compared to Tier 2 commercial criteria.

Chemical analysis of the natural cohesive superficial deposits has identified these soils to be acceptable for use as subsoil within the proposed landscaped areas; however, further chemical validation samples will be required to meet the regulatory sampling frequency.

No suitable sources of topsoil are available.

2.3. CONTROLLED WATERS RISK SUMMARY

A Tier 2 Controlled Water Risk Assessment was completed by E3P as part of the E3P Geoenvironmental Site Assessment, the findings of which are summarised as follows:

- ✳ Logwood Mill Brook located at the eastern boundary is considered to be the primary receptor.
- ✳ Chemical soil analysis has not identified any significantly elevated concentrations of heavy metals, PAHs or TPHs which could potentially pose a risk to the identified controlled water receptors. However, further investigation will be required beneath the existing building to confirm the absence of any significant impact.
- ✳ Chemical analysis of groundwater and leachate has primarily identified elevated concentrations of heavy metals, with a single instance of elevated fluoranthene in the groundwater sample compared to Environmental Quality Standards (EQS), and a single instance of elevated selenium compared to Drinking Water Standards (DWS).
- ✳ Given the site is predominantly underlain by cohesive deposits beneath the Made Ground, the lateral and vertical migration of compounds potentially contained within the deposits is substantially limited.
- ✳ The identified contaminants are generally of low solubility and mobility, therefore migration towards the brook is considered unlikely.
- ✳ The proposed development will create hardstanding cover across the site, thus reducing the amount of infiltration generated. This will in turn, reduce the leachability of contaminants from within the shallow Made Ground into the shallow groundwater, and reduce the risk further to the underlying aquifer and adjacent brook.
- ✳ Due to the above, it is considered by E3P that there is no significant risk to controlled waters.
- ✳ Surface water samples should be obtained from the brook to establish baseline conditions prior to the instigation of remediation works.





2.4. HAZARDOUS GROUND GAS

Ground gas has been assessed by E3P as part of the E3P Geoenvironmental Site Assessment. The determined Characteristic Situation for each standpipe is presented in Table 2.1.

Table 2.1 Gas Risk Profile and Location

WELL	MAX FLOW (l/hr)	MAX CH ₄ (%V/V)	MAX CH ₄ Q _{hg} (l/hr)	MAX CO ₂ (%V/V)	MAX CO ₂ Q _{hg} (l/hr)	CHARACTERISTIC SITUATION
WS101	<i>Flooded</i>					
WS103	0.10	36.3	0.0363	5.60	0.0056	Minimum CS2 Required
WS104	0.10	0.70	0.0007	3.00	0.0030	Minimum CS2 Required
WS105	<i>Flooded</i>					
WS106	0.10	0.10	0.0001	4.80	0.0048	Minimum CS2 Required
WS107	0.10	0.10	0.0001	1.40	0.0014	Minimum CS2 Required
WS109	0.10	8.00	0.0080	4.30	0.0043	Minimum CS2 Required
WS110	0.10	0.10	0.0001	0.50	0.0005	Minimum CS2 Required
WS111	0.10	0.10	0.0001	2.40	0.0024	Minimum CS2 Required

Although elevated concentrations of methane and carbon dioxide have been recorded, no flow has been observed, therefore the hazardous gas flow rates fall within a CS1 classification.

Unflooded mine workings are generally not capable of generating a persistent source of methane because the conditions necessary for methane production—such as anaerobic (oxygen-free) environments—are absent. Methane is typically produced through the anaerobic decomposition of organic material, which requires waterlogged, oxygen-depleted conditions. Decaying timber was identified within the shallow Made Ground in WS103 which may be contributing to the production of methane. It is also considered possible that the former sewage works adjacent to the east is a residual source of methane.

Concentrations of carbon monoxide and hydrogen sulphide were recorded below the analysers' limit of detection and therefore are not considered to be a cause for concern.

A Radon Class 1 has been applied to the site; therefore, no radon protective measures are required in the construction of new residential dwellings.

Fundamentally, due to the site being underlain by shallow coal workings, the site should be classified as CS2 as the risk from mining related gas is high.

A post remediation assessment will be required following the completion of the drill and grouting works to confirm the ground gas classification.

It is recommended that the full ground gas assessment and recommended protection measures (if applicable) are agreed with the local authority prior to their adoption on site. Furthermore, all protection measures adopted should be validated by a suitably qualified engineer.

As part of the detailed design, a Gas Protection Design Report will be required to mitigate hazardous ground gasses in accordance with BS8485 and CIRIA 735 and with consideration of CL:AIRE Good Practice for Risk Assessment for Coal Mine Gas Emissions (2021). This can only be completed as and when the post remediation gas regime is understood, and the sub-structure is designed.





3. SITE REMEDIATION AND ENABLING WORKS

3.1. SUMMARY OF REMEDIATION OPTIONS

It is considered that the following combination of remediation technologies provides the most sustainable, viable and economic solutions that will ultimately result in the successful remediation of the site:

- ✿ Construction of commercial unit with **specialist membrane** and mitigation measures to ensure no ingress of ground gas into commercial unit.
- ✿ **Management of all soils** impacted by asbestos fibres.
- ✿ Installation of a suitable **cover system** in proposed landscaped areas to remove any potential for direct exposure to impacted soils.
- ✿ **Off-site removal** of hazardous materials which cannot be treatment (if required).
- ✿ Construction of **appropriate potable water supply** infrastructure.

3.2. OVERVIEW OF WORK

Prior to the commencement of works on-site, the contractor must establish all necessary plant, equipment, and site welfare facilities as is necessary to complete the contract within the agreed timescales to the rationale as outlined in the following subsections.

For the avoidance of any doubt, the proposed operations as set out herein document the required performance objectives and validation sampling protocols; however, the specific methods of work deployed to ensure the remediation objectives are achieved in a compliant manner on-site will be the responsibility of the appointed contractor.

RE-1 – POST DEMOLITION SUPPLEMENTARY SITE INVESTIGATION

Following the demolition of the existing warehouse, supplementary investigation and soil sampling is recommended. Mechanically excavated trial pits will be advanced with additional chemical analysis of the soils completed to confirm no unacceptable risk to human health and controlled waters.

In addition, further sampling should also be completed in the location of the historically mapped tanks to confirm the absence of any impact. Soil samples should be submitted for PCB analysis when the existing electricity substation has been decommissioned.

If any as yet unidentified contamination is identified, this will be the subject of further investigation including laboratory analysis and subsequent assessment of risk within the context of the agreed parameters. Where a theoretical risk to either human health, controlled waters or the wider environs is identified, appropriate remediation works are to be instigated by the placement of clean cover systems to break the pathway or delineation and source removal where required.





RE-2 – PRE-COMMENCEMENT REGULATORY COMPLIANCE

Prior to commencement of any works on site, all reports relating to the assessment of risk to contaminated land should be submitted to the regulatory authorities to gain written approval.

All relevant Standard Rules Permits should be registered with the Environment Agency by the contractor.

The LAPC Part B Notification for deployment of mobile crushing plant should be implemented prior to the establishment of equipment on site.

If the proposed volume of soils to be reused (excluding crushed materials) exceeds the parameters of the Standard Rules Permit, a CL:AIRE Materials Management Plan (MMP) qualified declaration should be made by the contractor, having obtained full written approval for the remediation strategy from the Local Planning Authority and Environment Agency.

It is not anticipated that there will be any requirement to treat any materials on-site (such as hydrocarbon-impacted soil or groundwater); however, should any previously unidentified contamination be encountered, the contractor must either notify E3P and, if appropriate, relevant regulators of their intention to complete a minor works operation or arrange for the deployment of the appropriate environmental permit for the specified operation.

RE-3 – SITE CLEARANCE OPERATIONS

General site clearance and provision of welfare, offices and site security are to be determined as per the contract requirements.

Vegetation should be removed in a controlled manner with full compliance with any ecological mitigation measures that are required for the works. Any such measures are outside the scope of this report.

All vegetation should either be stockpiled at a pre-agreed location or alternatively removed from site in accordance with waste permitting regulations.

All root networks are to be removed from beneath the building footprint.





RE-4 – MONITORING OF SURFACE WATER

Logwood Mill Brook is located at the eastern site boundary.

All works to be completed within the main river channel or 8 m of the main river channel will require the appropriate EA Flood Risk Activity Environmental Permit. This should be obtained prior to the commencement of any activities (including demolition). It should be noted that works to the main river channel may be restricted during certain times of the year.

A construction surface water management plan will be included under separate cover. The contractor will be responsible for obtaining any relevant discharge consents where required.

Upstream and downstream samples of the brook should be analysed to assess the baseline water quality. When works commence, monitoring should be completed once every two months throughout the duration of the remediation and enabling works to appropriately monitor the brook.

Samples will be analysed for a testing suite to include heavy metals, TPH, PAHs, SVOC and VOC to ensure no detriment is occurring to the surface water feature during site works.

Identified concentrations should be compared to the baseline samples that are to be collected prior to the commencement of any site works.

Measures will be established to prevent surface water run-off from or into targeted excavation and treatment areas (if applicable) by sealing of existing manholes, bunding treatment areas (if applicable) and restricting excavations to facilitate daily re-instatement and deferring works in periods of poor and wet weather.

In the unlikely event of a pollution incident, works will cease until appropriate measures can be put in place to stop and prevent further impact to the watercourse, these may include forming further temporary bunds, interception trenches and deployment of additional pumps and treatment plant or targeted disposal options.

RE-5 – EXCAVATION, BREAKING AND PROCESSING OF ALL ABOVE- AND BELOW-GROUND STRUCTURES

Obstructions, relict foundations, and infrastructure (apart from live services) are to be removed from the areas of proposed development, including where no foundations and infrastructure is proposed.

It will be the contractors responsibility to remove all obstructions from the sites.

Obstructions encountered within the near-surface soils will be chased to their full depth and removed; if not possible, the obstruction must be surveyed with the location communicated to E3P, the client and the developer.

Where natural soils are present at a relatively shallow depth, extreme care should be taken to ensure that the natural cohesive deposits remain undisturbed with a full reduced-level survey to be completed to map the depth of filled/processed material.





RE-6 – MANAGEMENT OF ASBESTOS

Laboratory analysis identified trace amosite asbestos fibres (<0.001% wt/wt) in Made Ground at WS103, and chrysotile asbestos at trace levels in WS107 (<0.001% wt/wt) and at 0.069% wt/wt in shallow Made Ground at WS112A.

No visual signs of ACM were encountered during the ground investigation. Asbestos is likely to be present within the existing structures. A pre-demolition asbestos survey will be required within all existing buildings within the site boundary.

It should be assumed that asbestos fibres are present throughout the Made Ground on site. The risk to chronic human health associated with the elevated concentrations of loose fibres (<0.001%) can be mitigated through the installation of a suitable cover system in all areas of proposed landscaping to remove any potential for direct exposure to impacted soils.

Where asbestos is identified at concentrations above <0.001%, a hotspot excavation will be required and the impacted Made Ground will require placement >1.00 m beneath an area of low sensitivity in accordance with the E3P conceptual site model.

Any visual asbestos will require removal from site to a licensed waste facility. An Asbestos Management Plan will be required.

The contractor must ensure that all personnel working on site are trained in the identification of ACM and the risks associated with impacted soils.

Where any visual evidence of ACM is identified, these materials should be carefully segregated and removed from the soil matrices (if/where possible).

Validation sampling of the processed Made Ground should be completed to demonstrate compliance with the developed conceptual site model.

This process should be completed under strict controls to be devised and employed by the nominated contractor to ensure no potential for fibre release into ambient air.

If necessary, reassurance air testing in accordance with the requirements of HSG248 should be completed during the operation to move the soils to demonstrate the deployment of the required control procedures and safe working methods.





RE-7 – MANAGEMENT OF INVASIVE PLANTS

The remediation contractor must satisfy themselves with respect to the extent of all species deemed invasive prior to the commencement of works on site.

The contractor shall employ a suitably qualified expert to investigate the presence of invasive plant species on or adjacent to the site. If invasive plant species are identified, these will be treated in strict accordance with an approved method statement to be submitted to the supervising consultant for review prior to the instigation of any works.

Where invasive plant species are identified at the site boundary, a suitable barrier shall be installed to prevent any future reinfestation of the subject site.

Upon completion of the eradication, a validation report should be prepared documenting all identified invasive plant species, their location and the treatment methodology. Where materials are removed from the site, all waste transfer notes/duty of care certificates should be included within the validation statement.

RE-8 – PREPARATION OF LANDSCAPED AREAS FOR COVER SYSTEM

As part of the land remediation works, landscaped areas will be prepared in a manner that will facilitate the placement of the clean cover system during the development phase of the works. The preparation of the areas requiring clean cover is critical in ensuring delivery of the site in a manner that will ensure no risk to the proposed end users.

Where Made Ground is deemed unsuitable for retention in a landscaped area, the area will be subject to a reduced-level dig to remove unsuitable material to a minimum depth of 300 mm below finished landscaped area level or verified natural stratum (whichever is the shallower).

Excavated soil will be stockpiled pending the results of the appropriate validation testing (to be completed in accordance with this specification) prior to reuse in an area of no sensitivity or, where necessary, this material will be removed from site in accordance with UK waste management legislation.

The placement of certified subsoil and topsoil will be completed as part of the developer works/build-phase mitigation plan.

All landscaped areas where a cover system is required will be subject to independent validation.





RE-9 – PROVISION OF SUBSOIL

The natural superficial deposits (predominantly cohesive soils) are deemed suitable for use within the clean cover system to areas of soft landscaping. It is therefore deemed viable to reuse materials that are cut as part of the wider earthworks or through a soil inversion (regulated by an MMP) to generate the required volumes of material. These soils can be sustainably segregated, tested, and stockpiled for re-use as sub-soil.

Sub-soil stockpiles should be placed in areas that will ensure no 'cross contamination' from materials with significant anthropogenic influence on-site.

Any imported subsoil will require testing in line with the schedule present within Section 7.1 and Table 7.1.

The landscaped areas will require depth validation to demonstrate that the appropriate thickness has been provided as a growing medium.

RE-10 – PROVISION OF TOPSOIL

No material that would be deemed suitable for use as topsoil is present, and as such, there will be a requirement to import suitable material for use within the proposed development.

Topsoil will require testing in line with the schedule present within Section 7.1 and Table 7.1.

The landscaped areas will require depth validation in order to demonstrate that the appropriate thickness has been provided as a growing medium.

RE-11 – INDEPENDENT VALIDATION: WATCHING BRIEF

Given the site history and potential contamination sources identified within the ICSM, a degree of uncertainty remains with regard to the potential for as yet unidentified contamination impact within the near-surface soils and groundwater.

It will therefore be necessary that the on-site contractor notifies E3P if any previously unidentified contamination is encountered.





RE-12 – IMPORTATION OF MATERIALS FOR USE IN CONSTRUCTION

Where there is a net shortfall of material required to achieve the proposed ground levels, it will be necessary to import natural inert soils and aggregate as per the engineering requirements.

Imported material must be certified as suitable for use in strict accordance with the geotechnical performance criteria and in conjunction with the required duty of care notes and waste transfer exemption.

If recycled aggregates are imported, then laboratory testing should be completed to demonstrate compliance with the Waste and Resources Action Programme (WRAP) protocol.

Where inert soils are imported, laboratory testing should be completed in accordance with the requirements of the pertinent environmental permit (i.e. U1 Standard Rules) or CL:AIRE MMP for the reuse of clean, naturally occurring soils.

RE-13 – WASTE SOILS SURPLUS TO REQUIREMENTS

In the event that a surplus of excavation material is present on-site, this, in most cases, will be deemed to be a waste in accordance with the Waste Framework Directive (Article 3(1) Waste Framework Directive 2008/98/EE). The waste producer – but ultimately, the landowner – is responsible for the compliant disposal of such materials.

A formal waste classification assessment must be undertaken, irrespective of any future options or considerations for those materials that will be removed from site. Waste classification should only be made following the Environment Agency *Technical Guidance WM3 – Guidance on the Classification and Assessment of Waste*.

To remove the surplus material from site it will either need to be sent to a disposal site (landfill), to a permitted treatment facility or, dependent on the waste classification assessment, it may be suitable for use on a permitted land improvement or restoration operation.

Subject to suitability, these soils can be transferred to the receiving site, subject to an approved permit or materials management plan following guidance in the CL:AIRE *Definition of Waste: Code of Practice*.

RE-14 – POST REMEDIATION GROUND GAS ASSESSMENT

Upon completion of remediation and drill and grouting works, an updated ground gas risk assessment will be required.

As part of the detailed design, a Gas Protection Design Report will be required to mitigate hazardous ground gasses in accordance with BS8485 and CIRIA 735. This can only be completed as and when the post remediation gas regime is understood, and the sub-structure is designed.





RE-15 – REMEDIAL VERIFICATION REPORT

The collation of information relating to site clearance, chemical testing, remedial works, remedial verification, material movements and waste transfer documentation is required, where appropriate.

Complete remedial validation i.e. the retention and clean capping of asbestos impacted materials is to be reported in line with regulatory guidance.

The report will be submitted to the Local Authority for approval following completion.

3.3. VALIDATION SAMPLING PROTOCOL

In accordance with the current requirements of the regulatory authorities, validation samples will be collected from all materials that are to be subject to movement under the protocols outlined within this remediation and enabling works strategy, or for materials to be imported onto site to facilitate the proposed residential development.

Soil samples destined for chemical analysis will be collected at regular intervals in appropriate sampling containers. All samples will subsequently be stored in cooled boxes prior to submission to a UKAS/MCERTS accredited laboratory.

All samples will be collected using appropriate personal protective equipment (PPE) and sampling equipment, which will be cleaned at each sampling location.

A detailed copy of E3P Ltd sampling methodology, QA procedures and laboratory chain of custody forms will be documented within the site records and presented with the final validation report for the site.

Where material is found to contain concentrations of potential contaminants at levels in excess of the site-specific screening criteria (as detailed within the enclosed appendices), E3P will undertake further assessment and recommendations on the appropriate use for the material in question, which may involve the disposal of such materials off-site to a suitable waste management facility.

The sampling frequency for materials to be managed under the remediation strategy is presented in Table 3.1. The validation sampling protocol has been developed utilising guidance from the Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG) due to wide usage of this guidance amongst Regulatory Authorities.

Table 3.1 Specification of Chemical Validation Laboratory Analysis

MATERIAL USE	TESTING FREQUENCY	SUITE OF ANALYSIS
Site-Generated		
Site-Generated 6F2	1 Sample per 500 m ³	A/B/C/D
Site-Won Made Ground General Backfill	1 Sample per 250 m ³ where visual and/or olfactory impact is identified	G
Stockpiled Made Ground General Backfill	1 Sample per 1000 m ³	A/B/C/D
Stockpiled Made Ground General Backfill	1 Sample per 2000 m ³	I
Stockpiled Natural Backfill	1 Sample per 2000 m ³	A/B/C/D
Site-Generated Subsoil	1 Sample per 100 m ³	A/B/C/D





MATERIAL USE	TESTING FREQUENCY	SUITE OF ANALYSIS
Imported		
6F2	1 Sample per 500 m ³	A/B/C/D
Subsoil Greenfield Source	1 Sample per 250 m ³ (minimum 3 per source)	A/B/C/D
Subsoil Brownfield Source	1 Sample per 100 m ³ (minimum 6 per source)	A/B/C/D
Topsoil Greenfield Source	1 Sample per 100 m ³ (minimum 3 per source)	A/B/C/D
Topsoil Brownfield Source	1 Sample per 50 m ³ (minimum 6 per source)	A/B/C/D
General Engineering Fill (Class 1 and 2 Soil)	1 Sample per 1000 m ³	A/B/C/D

Notes

Suites of Analysis:

- A. Speciated PAH.
- B. Speciated TPH (C5-C35).
- C. Asbestos (ID) and quantification if required.
- D. CLEA Inorganic Heavy Metals.
- E. Speciated PAH, Banded TPH and VOCs.
- F. SVOC/Speciated TPH.
- G. On-Site Screening for VOC Using Calibrated PID.
- H. Leachate 2:1 Speciated PAH and Banded TPH.
- I. Leachate Analysis of Inorganic Heavy Metals, TPH, Sulphate and PAH.

All analysis prescribed above to be completed by UKAS-accredited laboratory.

3.4. REMEDIATION CONTRACTORS SITE MANAGEMENT AND RESPONSIBILITY

The appointed remediation contractor will take full and overarching responsibility for all methods of work required to complete the site remediation and enabling operations to ensure the delivery of the site and the completion of the objectives in a safe, legislatively compliant manner that ensures no pollution to the subject site or the wider environs.

For individual remediation operations as set out within this performance specification, the contractor will provide site-specific methods of work for individual operations pertaining to the removal and treatment of contaminated liquids and soils. For each and every operation as set out herein, the contractor will provide a written methodology of works to be supplied to the supervising geo-environmental engineer prior to the instigation of operations on-site.

The site manager will be responsible for documentation of each day's activities with a full recorded schedule of works completed and corresponding site-specific method statements that have been utilised to ensure the completion of the task to the required standard.





4. ENVIRONMENTAL MONITORING AND VALIDATION

4.1. SITE MANAGEMENT

The tracking of materials will be based on the following hierarchy:

- ✿ The principal contractor will have the responsibility for setting out areas of the site on the basis of the contract specification.
- ✿ Operatives will have instructions only to excavate and to emplace materials in specified areas as assigned by the site manager/foreman.
- ✿ The site manager (employed by the principal contractor) will issue daily instructions to drivers regarding the placement of materials sourced from specific stockpiles or areas, ensuring that appropriate documentary evidence is collected that details which materials are going where and why.
- ✿ An E3P consultant, who will be in attendance as required, will:
 - Inspect the excavation areas and certify that the correct materials are being excavated;
 - Conduct spot checks on loaded vehicles to ensure compliance with this remediation strategy; and,
 - Ensure that any loads that fail visual, olfactory or spot checks either remain on the vehicle or, if unloaded, are excavated and set aside. This material will be treated according to the recommendations of the E3P site engineer.
- ✿ E3P will conduct an audit of waste consignment notes. All material imported and removed from site will have duty of care/consignment notes, copies of which will be retained on-site by the site manager.
- ✿ Materials directly reusable will be incorporated into the earthworks, subject to operational conditions and phasing of excavations, in which case they will be stockpiled prior to final placement.

4.2. COMPLETION

Following the completion of the remediation works, a report will be compiled by the nominated environmental consultant detailing all site enabling works undertaken, waste consignment notes, and all site investigations, laboratory test certificates and validation testing undertaken.

A certificate of completion of earthworks should be included within the report which should then be issued to the local authority for their approval.

E3P considers that with the adoption of the above best practices the site can be safely redeveloped. The site enabling works process and presence of any residual contamination (if this is the case) should be recorded for future reference by landowners/occupiers. Future development at the site where this may result in penetration of new areas of hardstanding should be subject to no-less-stringent measures with respect to assessment and, where appropriate, monitoring, than those set out herein.





4.3. MITIGATION OF RISK FROM SOILS WITH ASBESTOS FIBRES

Laboratory analysis identified asbestos in the form of loose chrysotile fibres in the Made Ground in TP107 at 1.00 m bgl and TP109 at 1.20 m bgl and in the form of chrysotile-bitumen in TP112 at 1.00 m bgl. Asbestos quantification was undertaken to further assess where these soils may be placed, this quantification detected levels of asbestos at <0.001% volume/weight. The below measures are advised.

4.3.1. PRE-COMMENCEMENT WORKS

Prior to the commencement of works the following requirements must be satisfied:

-  Induction of all people that will be involved with the proposed site works; and
-  All methodologies must be agreed upon by all parties involved.

4.3.2. CONTROL, MONITORING AND REPORTING OF GENERAL AERIAL EMISSIONS FROM DUSTS AND PARTICULATES

DAMPING DOWN OF SOILS – MITIGATE PARTICULATE (DUST) EMISSION

During excavation, as outlined within the detailed working methodologies, soils will be regularly damped down using water to control the generation of dust (this may also comprise precipitation). The contractor will determine the best form of dust suppression to be used when a detailed programme has been issued.

If any previously unidentified asbestos-containing materials are identified, these should be dealt with in strict accordance with the *Control of Asbestos Regulations* (2012) and industry best practice as detailed in CIRIA 733.

GENERAL CONTROL OF DUST

The following control measures should be utilised to ensure that dust levels are kept to a minimum at all times:

-  Where necessary, haul road, work areas and stockpiles will be damped down with water spray.
-  The application of water to haul roads, work areas and stockpiles should be closely monitored by the resident engineer to ensure that soils are not saturated and, therefore, that the potential for water run-off is appropriately mitigated.
-  Once completed, any stockpiles will be sealed by compacting at the surface.
-  Vehicle speeds and movements on-site will be kept to a minimum (< 5 mph) during civil excavation works to reduce the potential to generate dust.





PERSONAL PROTECTIVE EQUIPMENT (PPE)

In accordance with the HSE *Guidance Note em6: Asbestos Essentials, Personal protective equipment (including RPE)*, E3P recommend that all site operatives present within the work area where potential asbestos-impacted soils are being excavated are supplied with the following personal protective equipment:

Overalls:

- ✿ Disposable overalls.
 - Type 5 (BS EN ISO 13982-1) are suitable.
 - Cotton overalls hold dust and need specialist laundering.
- ✿ Waterproof overalls for outdoor work.
- ✿ Use oversized overalls - this will help to prevent ripping at the seams.
- ✿ If the cuffs are loose, seal them with tape.
- ✿ Avoid wearing a long-sleeved shirt as these are difficult to cover properly.
- ✿ Wear the overall legs over footwear as tucking them in lets dust into footwear.
- ✿ Wear the hood over the RPE straps.

Failure to utilise and correctly employ PPE will result in immediate cessation of works. Works will not be permitted to recommence until the individual has undergone further training in the use of PPE or the individual is removed from the works area.

At this current time, with the levels of ACM identified within the soils, the above-listed PPE is not considered to be required for all site personnel during the entire management of these soils.

When handling asbestos-impacted soils during the enabling works, asbestos monitoring works should be conducted in accordance with, but not limited to, the following HSE legislation and guidance:

- ✿ *Health & Safety at Work Act 1974;*
- ✿ *The Control of Asbestos Regulations 2012;*
- ✿ CL:AIRE, 2016. *Control of Asbestos Regulations 2012 - Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials: Industry guidance;*
- ✿ *Approved Code of Practice L143 Work with materials containing asbestos;*
- ✿ *Management of Health and Safety at Work Regulations 1999;*
- ✿ *HSE Guidance Note HSG248 Asbestos, the analysts guide to sampling and analysis;*
- ✿ *HSE Guidance Note HSG247 Asbestos: The licensed contractors' guide; and*
- ✿ *CIRIA 733 Asbestos in soil and Made Ground: a guide to understanding and managing risks.*





If required, air monitoring in accordance with HSG248 will be undertaken intermittently throughout the duration of the works at a frequency to be determined by the contractor, entirely dependent on whether asbestos-impacted soils are being handled at any given time. In general terms, during any one monitoring period, ten standard monitoring pumps will be run throughout the day, for the appropriate time period to achieve the required limit of detection. These slides will be analysed immediately by the on-site UKAS-accredited laboratory.

Once any monitoring has been analysed by the on-site UKAS-accredited laboratory, the results will be delivered to the resident engineer who will then follow the correct site procedure. The results will then be included within the verification report.





5. RECORD-KEEPING AND VERIFICATION

5.1. RECORD-KEEPING

During the course of the remediation and site enabling works, the Site Manager and E3P consultant will undertake the following record-keeping protocols:

- ✳ Detailed site diary including material movements;
- ✳ Sampling register, testing results, photographs, details of locations of impacted soils (drawings), details of any hotspot removals, details of consignment notes of any impacted material that is required to be disposed of off-site; and
- ✳ Detailed surveys (volumes).

Record-keeping on-site, in particular movements and analysis of specific material types, will be in the form of site diaries and a remediation excavation record.

This record will remain on-site and will be completed by the Site Manager (and E3P on-site engineer) during the course of the remediation and site enabling works.

5.2. VERIFICATION

The records listed above will then be compiled into a validation report produced by E3P on completion of the remediation and site enabling works, clearly referencing the origin of the materials used and testing carried out to confirm its suitability for use, where required.

The validation report may also include the following:

- ✳ Remediation strategy (including copies of confirmation from regulatory authorities agreeing criteria);
- ✳ Detailed surveys of all excavations and production of as-built drawings for the earthworks;
- ✳ Copy of consignment notes relating to the movement of wastes to a licensed waste management facility;
- ✳ Detailed drawings showing all sampling locations for both chemical and geotechnical testing;
- ✳ Chemical test results (of in-situ soils or imported soils);
- ✳ Geotechnical test results (if any required);
- ✳ Details of qualified persons signed declaration; and
- ✳ Monitoring results if undertaken (e.g., asbestos in air, gas water).





6. CONTINGENCY PLAN

6.1. PREVIOUSLY UNIDENTIFIED CONTAMINANTS

Should significantly impacted material be encountered during the development, then it will be excavated and stockpiled on an impermeable material and sampled and tested for an appropriate range of determinants.

Once the laboratory analysis of the material is available, an assessment will be undertaken to determine whether it can be retained on-site as part of the material management plan or whether it should be disposed of off-site.

Depending on the nature of any such impact, it may be necessary to undertake validation testing of the excavation faces in order to demonstrate that no such materials are left in situ.





7. SECOND PHASE MITIGATION AND MANAGEMENT – BUILD PHASE

7.1. OVERVIEW OF PROJECT REQUIREMENTS

Landscaped areas will be prepared in a manner that will facilitate the placement of the clean cover system during the development phase of the works. The preparation of the areas requiring clean cover is critical in ensuring delivery of the site in a manner that will ensure no risk to the proposed end users.

A Gas Protection Design Report will be required under separate cover which will detail the ground gas mitigation and validation requirements.

7.2. COVER SYSTEM

This document details the construction works that are required to ensure full compliance with the remediation Strategy, Regulatory Authorities, Building Control & Warranty Providers;

The following should be implemented during the build phase of the development:

- ✿ Laboratory testing of the imported topsoil;
- ✿ Chemical validation of any additional subsoil imported for use within soft landscaping.
- ✿ Placement and validation of subsoil and topsoil (clean material) in a 300 mm layer within any landscaped areas;
- ✿ Placement and validation of imported subsoil and topsoil (clean material) to a depth of between 600–900 mm within any tree pits; and
- ✿ Installation and validation of potable water supply infrastructure to be compliant with United Kingdom Water Infrastructure Risk (UKWIR) assessment criteria.

The validation protocols are presented within the E3P Remediation and Enabling Works Strategy and are presented below.

7.3. PLACEMENT OF COVER SYSTEM

The remedial requirements with respect to human health of the future site users includes the provision of a chemically suitable clean material to be installed in all landscaped areas; the construction of the clean cover / placement of clean material shall consist of:

- ✿ 150 mm subsoil;
- ✿ 150 mm topsoil (or 300 mm topsoil if preferred).

Installation to be advanced to between 600–900 mm in any tree pits, comprising of at least 150 mm of topsoil.

In accordance with the current requirements of the regulatory authorities, validation samples will be collected from all materials that are to be imported to confirm the proposed development will pose no unacceptable risk to human health or the wider environ.

Subsoil and topsoil shall be free of any deleterious materials, such as buildings materials, timber, plastics etc and conform to the requirements of BS 3882:2015.





Testing requirements for topsoil and subsoil are presented in Table 7.1.

Table 7.1 **Specification for Soil Testing**

MATERIAL USE	TESTING FREQUENCY	SUITE OF ANALYSIS
Subsoil Greenfield Source (150 mm Landscaping Cover)	1 Sample per 250 m ³ (minimum 3 per source)	A/B/C/D
Subsoil Brownfield Source (150 mm Landscaping Cover)	1 Sample per 100 m ³ (minimum 6 per source)	A/B/C/D
Topsoil Greenfield Source (150 mm Landscaping Cover)	1 Sample per 100 m ³ (minimum 3 per source)	A/B/C/D
Topsoil Brownfield Source (150 mm Landscaping Cover)	1 Sample per 50 m ³ (minimum 6 per source)	A/B/C/D

Notes

Suites of Analysis:

- A. Speciated PAH.
- B. Speciated TPH (C5-C35).
- C. Asbestos (ID).
- D. CLEA Inorganic Heavy Metals.

7.3.1. PROCEDURE FOR PLACEMENT OF CHEMICALLY SUITABLE COVER SYSTEM

Made Ground soils are to be stripped from beneath proposed areas of landscaping to a minimum of 300 mm bgl.

Landscaped areas need to be backfilled with 150 mm chemically validated subsoil, with 150 mm topsoil overlaying this. These soils are required to be confirmed as chemically suitable prior to placement.

Details of the source of the topsoil and subsoil will be provided by the earthworks contractor appointed to install the cover system as part of the build phase.

The placement of 300 mm of clean material will be undertaken during the build phase works of the project, following construction of the commercial units.

The placement of subsoil and topsoil and corresponding validation will be documented within the Landscaping Validation Letters (to be issued on completion of the contractor's works).

If natural superficial deposits are encountered within the 300mm strip, then excavations can cease here.

E3P will collect photographic evidence of the placement of 150 mm of certified topsoil and 150 mm of subsoil on completion of construction works.

The landscaping validation procedure is detailed in Table 7.2 overleaf.





Table 7.2 Landscaping Validation Procedure

PROCEDURE	METHOD
Chemical Validation	Imported topsoil (and subsoil) will need to be chemically analysed to confirm suitability for use with the proposed cover system prior to installation and completion of the landscaping systems. E3P will issue an email to the appropriate party with an assessment of the chemical suitability of the topsoil. If acceptable, the materials can be installed to the required depth, at which time the landscaped areas will be deemed complete following a validation procedure by a suitability qualified E3P engineer.
Trial Holes	Trial holes are deemed necessary for all landscaped areas given that the 300 mm cover system will need to be placed during the build phase.
Validation	Photographic evidence will be taken by E3P of the topsoil placement demonstrating the depth of topsoil and practical completion of works for all landscaped areas.
Validation Certificate	E3P will issue a validation certificate (for each landscaped parcel) to demonstrate that the required topsoil has been placed in the required landscaped areas along with the chemical analysis.

Plate 1 provides an example of validation photographs that will be required for each area of landscaping.





PLATE 1 EXAMPLE COVER SYSTEM VALIDATION

Plot No: 4 (Car Park Landscaping)

Depth of Strata (m bgl)

0.00-0.30

Validated TOPSOIL

Depth of Cover System Materials

Depth of Cover System Materials



Depth of Cover System at Ground Level and in Relation to Unit / Structure





7.4. POTABLE WATER SUPPLY INFRASTRUCTURE

A contaminant risk assessment completed in accordance with the UKWIR assessment framework should be completed and will be addressed under separate cover.

We trust this information is satisfactory to your requirements, and should I be able to be of any further assistance, please do not hesitate to contact me.

Yours sincerely,

For and on behalf of E3P Ltd

Written by
Nicola Sellars
Technical Principal Specialist
MSci (Hons), FGS, MEnvSc, CSci

Approved by
Alex Smith
Associate Director
(BSc Hons, MSc, FGS)

Enclosed

Appendix I Drawings

18-824 - 001 - Site Location Plan
18-824 - 002 - Proposed Development Plan
18-824 - 003 - Historical Features Plan
18-824 - 004 - Site Features Plan
18-824 - 006 - Exploratory Hole Location Plan
18-824 - 007 - Depth of Made Ground Plan
18-824 - 011 - Conceptual Site Model
18-824 - 012 - Depth to Bedrock Plan
18-824 - 014 - Contamination Exceedances Plan

Appendix II E3P Remediation / Validation Criteria

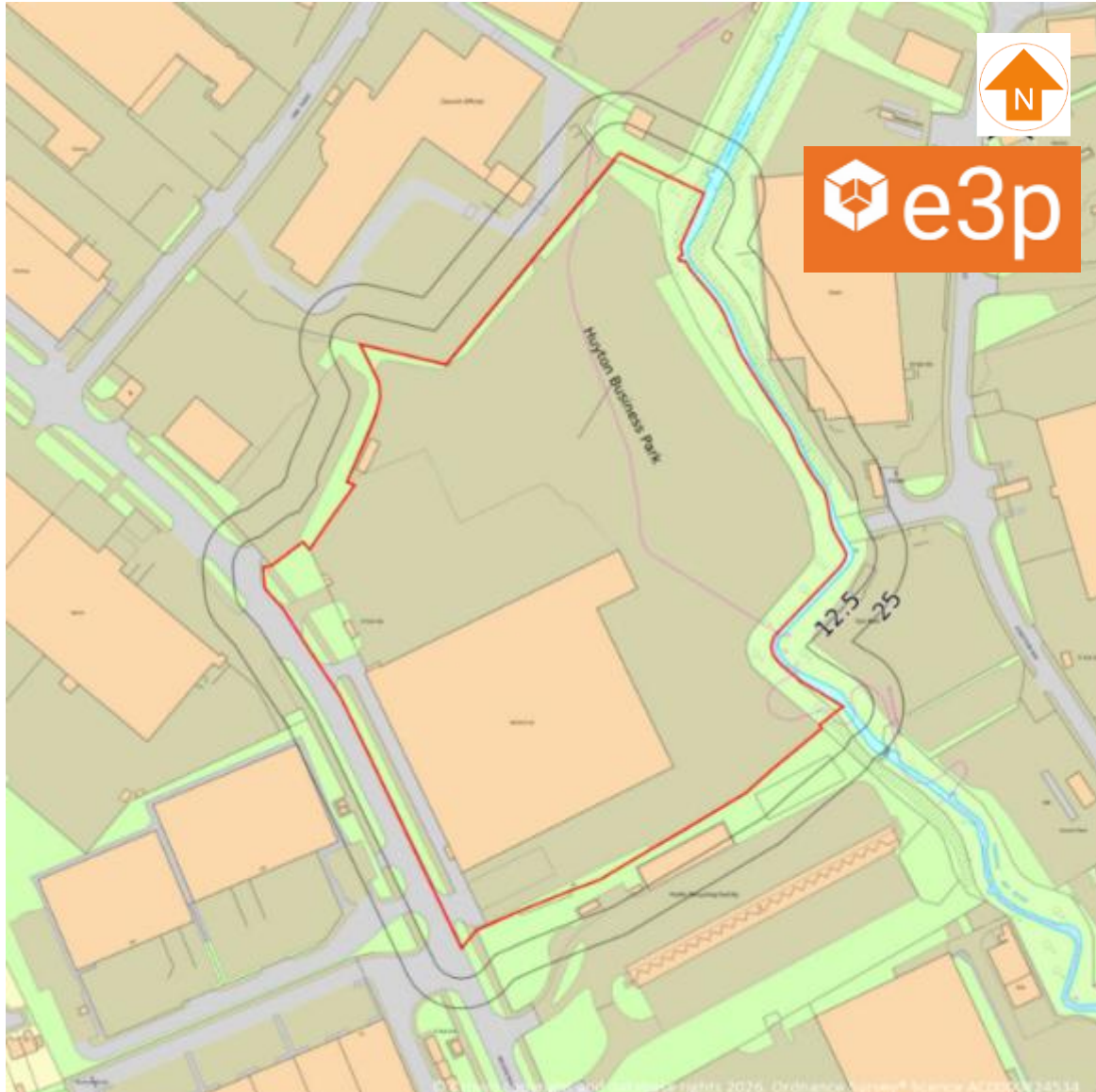


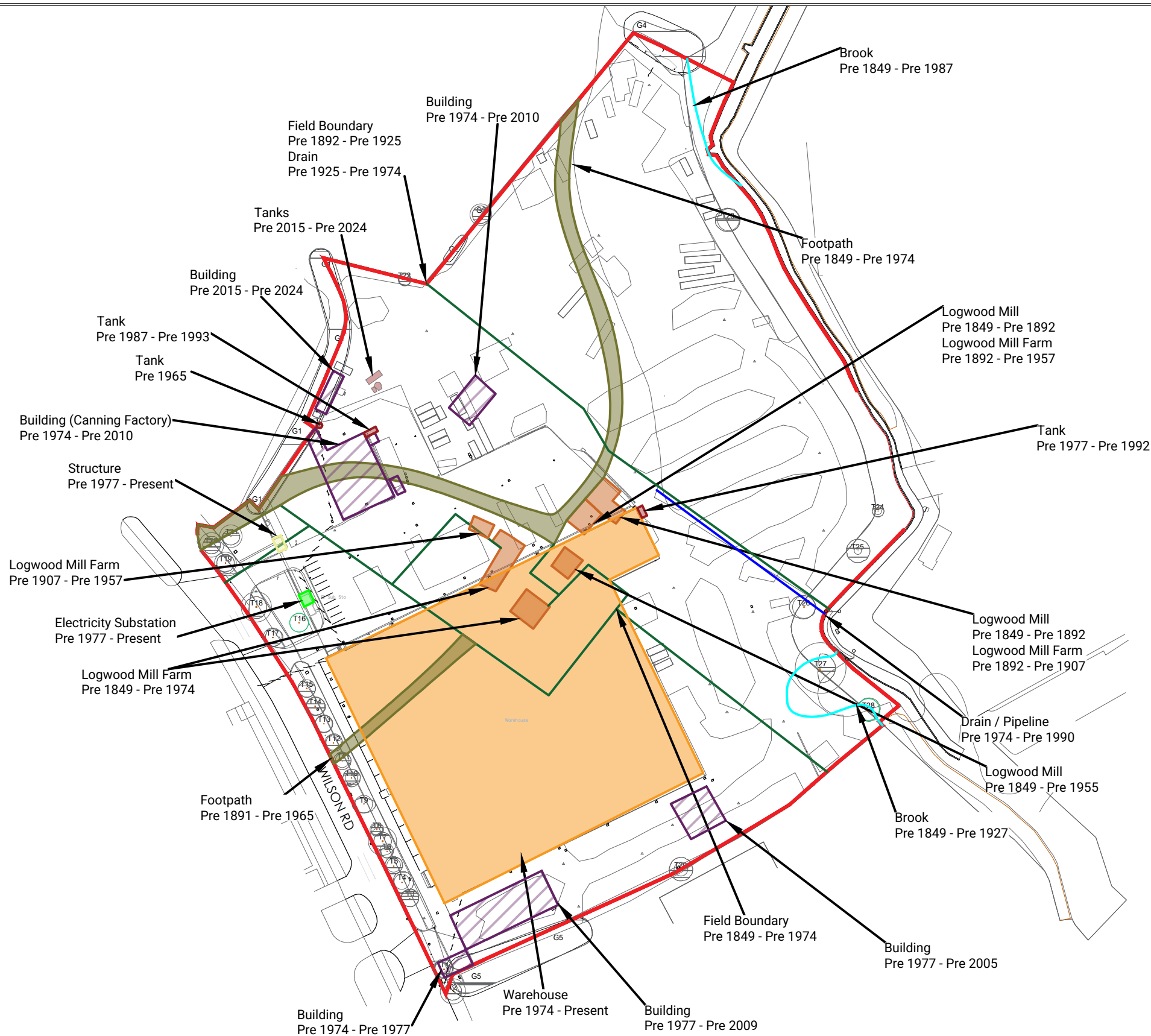
APPENDIX I

DRAWINGS



DRAWING 18-824 – SITE LOCATION PLAN





Key			
	Logwood Mill / Logwood Mill Farm		Structure
	Warehouse		Tank
	Building		
	Footpath		
	Electricity Substation		
	Footpath		
	Field Boundary		
	Brook		
	Drain		

Notes:					
P1	REVA	18.05.2026	TG	NS	NS
Phase	Issue	Date	Drawn	Checked	PM

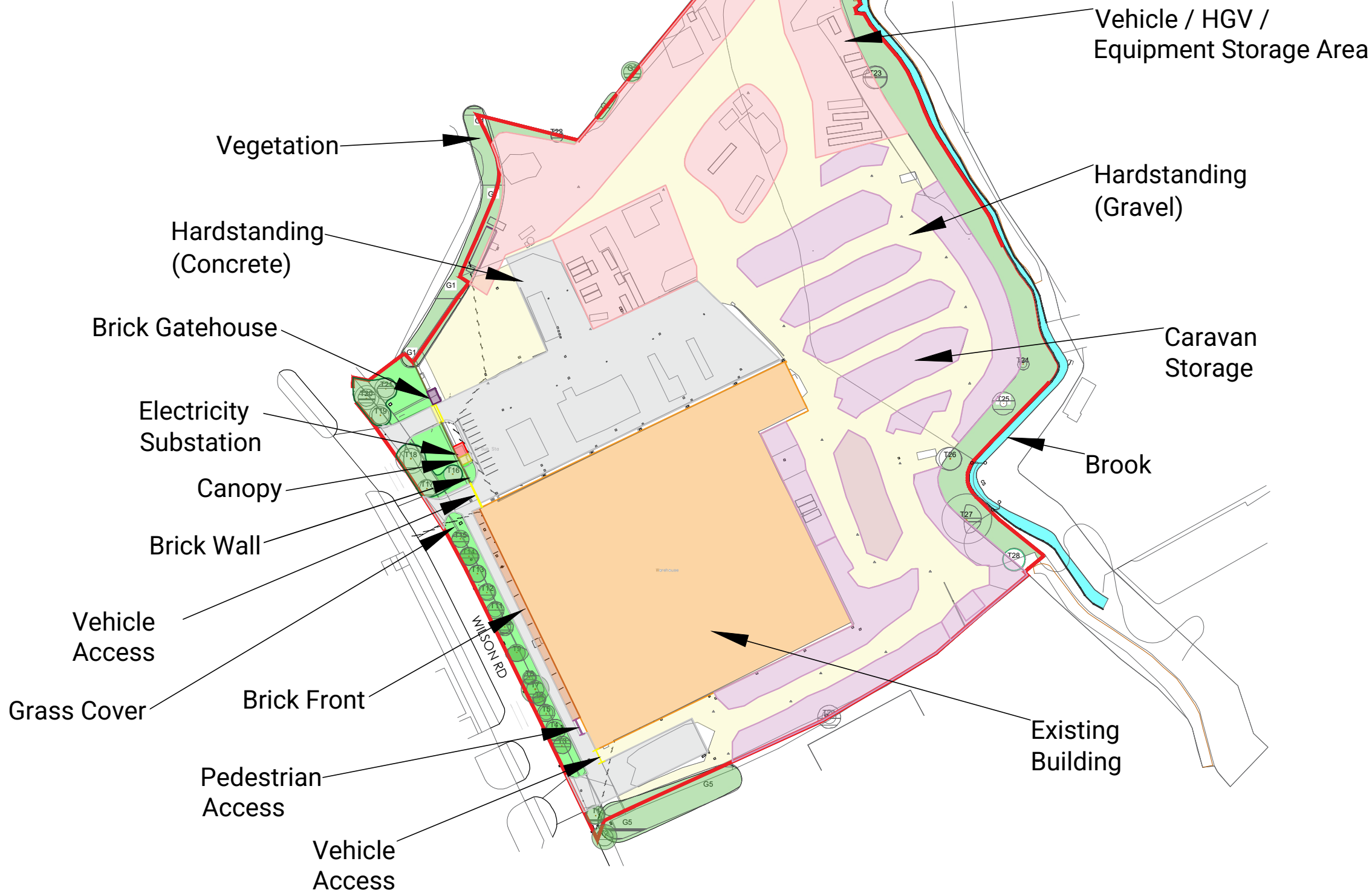
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Job Title:	Wilson Road, Huyton

Job No:	18-824	Date:	18.05.2026
Drawing No:	003	Scale:	NTS
Drawing Title:	Historical Features Plan		



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Key	
	Brick Front
	Existing Building
	Caravan Storage
	Vegetation
	Grass Cover
	Brook
	Pedestrian Access
	Vehicle Access
	Hardstanding (Concrete)
	Hardstanding (Gravel)
	Brick Gatehouse
	Electricity Substation
	Canopy
	Brick Wall

Notes:					
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Phase	Issue	Date	Drawn	Checked	PM

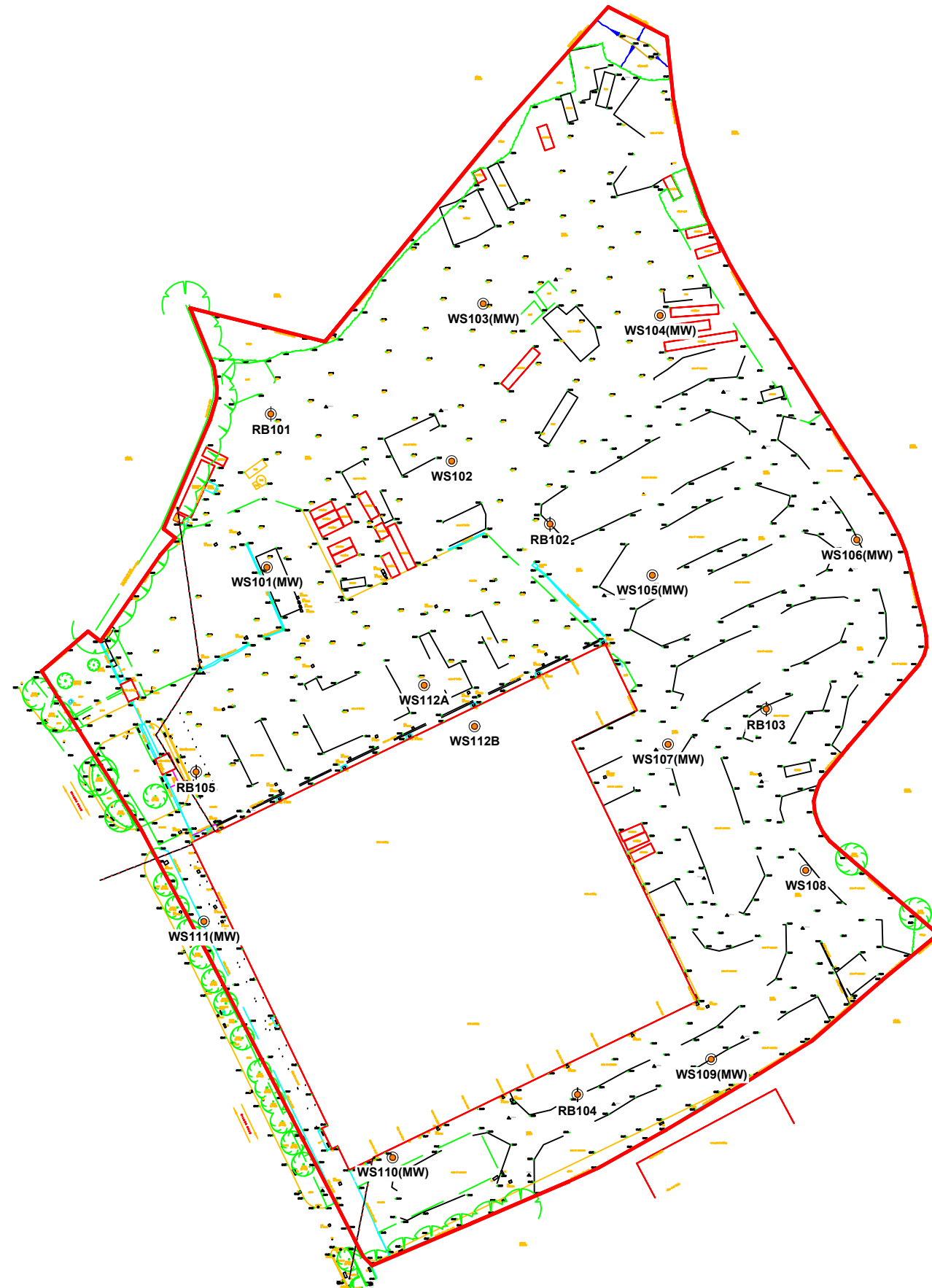
Client:
DJL Construction NW Ltd
Job Title:
Wilson Road, Huyton

Job No:
18-824
Drawing No:
004
Date:
18.05.2026
Scale:
NTS
Drawing Title:
Site Features Plan



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- Location Symbols
-  Approximate Window Sample Probehole Location
 -  Approximate Window Sample Probehole Location with Install
 -  Approximate Rotary Borehole Location

Notes:					

Client:
DJL Construction NW Ltd

Job No:
18-824
Drawing No:
006
Date:
18.05.2026
Scale:
NTS



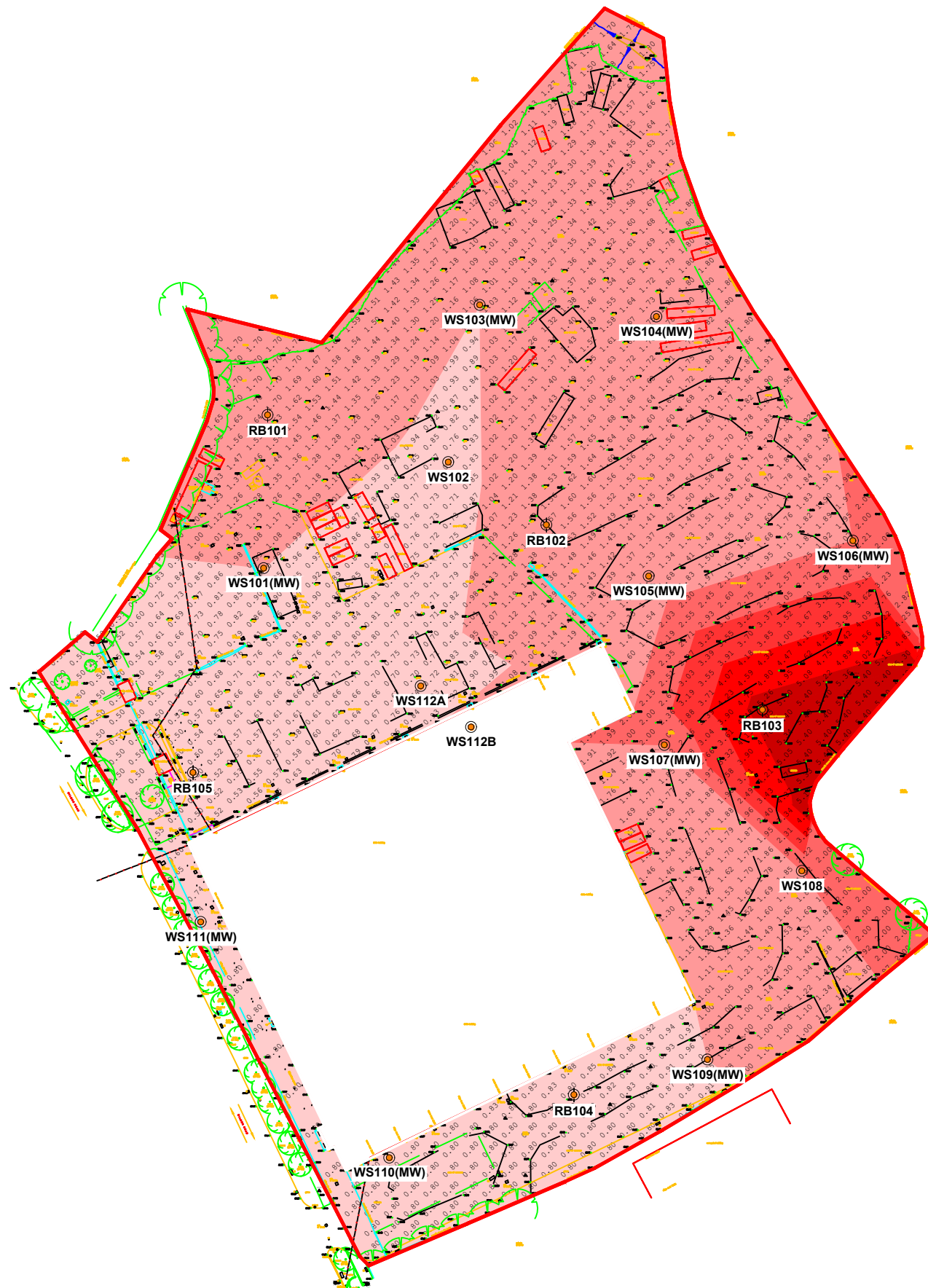
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P1	REVA	18.05.2026	TG	NS	NS
Phase	Issue	Date	Drawn	Checked	PM

Job Title:
Wilson Road, Huyton

Drawing Title:
Exploratory Hole Location Plan

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- Location Symbols
- Approximate Window Sample Probehole Location
 - Approximate Window Sample Probehole Location with Install
 - Approximate Rotary Borehole Location

- Made Ground Depth (m)
- Depth of Made Ground 0.00 - 0.99m
 - Depth of Made Ground 1.00 - 1.99m
 - Depth of Made Ground 2.00 - 2.99m
 - Depth of Made Ground 3.00 - 3.99m
 - Depth of Made Ground 4.00 - 4.99m
 - Depth of Made Ground >5.00m

Notes:

P1	REVA	18.05.2026	TG	NS	NS
Phase	Issue	Date	Drawn	Checked	PM

Client:

DJL Construction
NW Ltd

Job Title:

Wilson Road, Huyton

Job No:	18-824	Date:	18.05.2026
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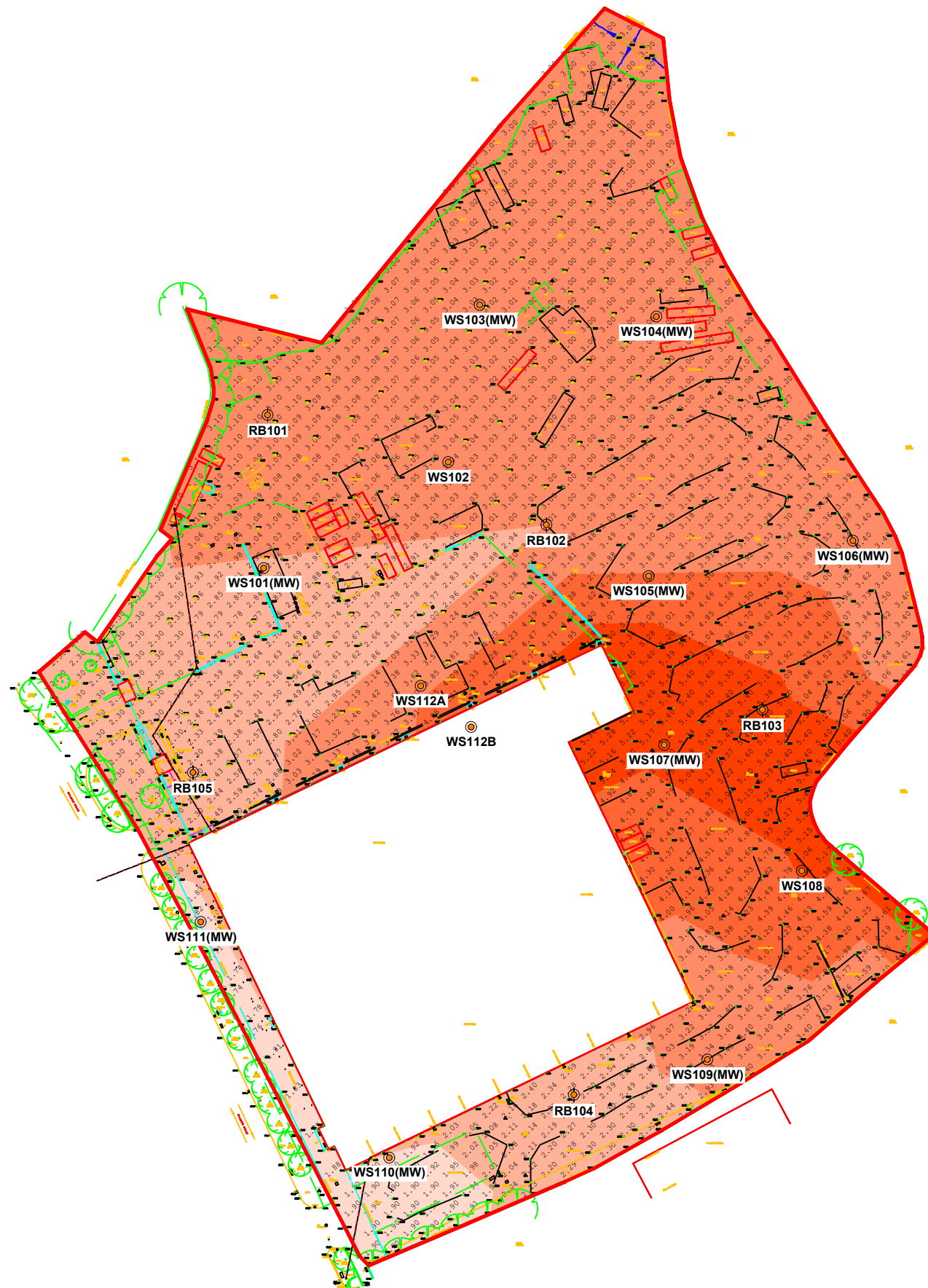
Drawing Title:

Depth To Made Ground Plan



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Location Symbols		Bedrock Depth (m)	
	Approximate Window Sample Probehole Location		Depth to Bedrock 1.00 - 1.99m
	Approximate Window Sample Probehole Location with Install		Depth to Bedrock 2.00 - 2.99m
	Approximate Rotary Borehole Location		Depth to Bedrock 3.00 - 3.99m
			Depth to Bedrock 4.00 - 4.99m
			Depth to Bedrock >5.00m

Notes:					
P1	REVA	18.05.2026	TG	NS	NS
Phase	Issue	Date	Drawn	Checked	PM

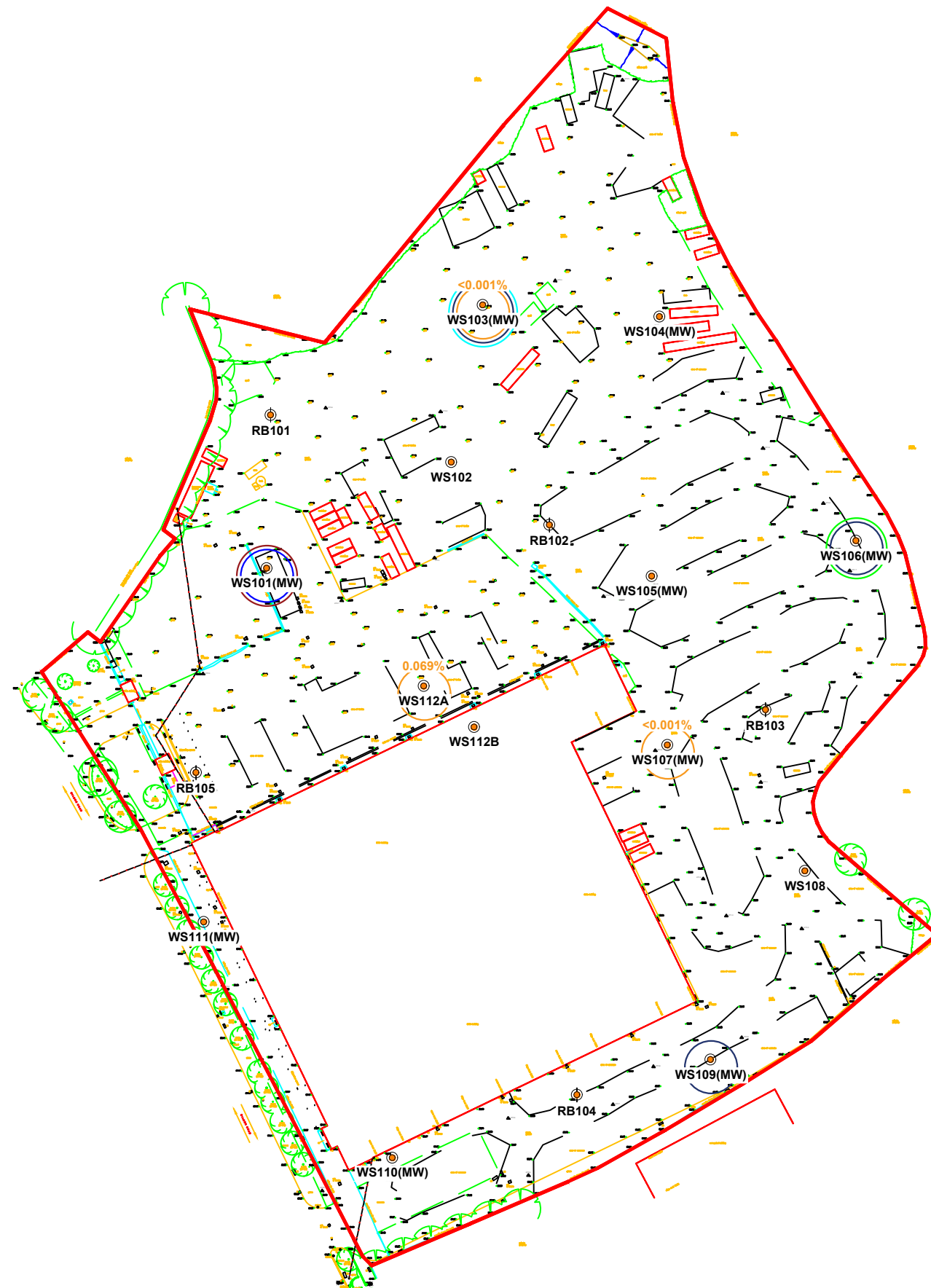
Client:	
DJL Construction NW Ltd	
Job Title:	
Wilson Road, Huyton	

Job No:	18-824	Date:	18.05.2026
Drawing No:	012	Scale:	NTS
Drawing Title:		Depth Of Bedrock Plan	



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- Location Symbols
- WS101 Approximate Window Sample Probehole Location
 - WS101(MW) Approximate Window Sample Probehole Location with Install
 - RB101 Approximate Rotary Borehole Location
- Contamination Exceedances - Soils
- Asbestos
- Contamination Exceedances - Groundwater
- Heavy Metals
 - Fluoranthene
- Contamination Exceedances - Leachate
- Heavy Metals
 - Total Cyanide
 - pH

Notes:					
P1	REVA	18.05.2026	TG	NS	NS
Phase	Issue	Date	Drawn	Checked	PM

Client:	
DJL Construction NW Ltd	
Wilson Road, Huyton	

Job No:	18-824
Drawing No:	014
Date:	18.05.2026
Scale:	NTS
Drawing Title:	
Contamination Exceedances Plan	



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APPENDIX II

E3P REMEDIATION/ VALIDATION CRITERIA



HUMAN HEALTH REMEDIATION TARGETS – COMMERCIAL END USE

DETERMINAND	UNIT	WITHIN 300 MM COVER SYSTEM (POS)	UNDER HARD STANDING AND >300 MM TO 1.0 M BELOW COVER SYSTEM **	PATHWAY
Arsenic	mg/kg	79	640	1
Cadmium	mg/kg	120	190	1
Chromium (Hexavalent)	mg/kg	7.7	33	1
Lead ***	mg/kg	630	2300	1
Elemental Mercury	mg/kg	16	58	4
Nickel	mg/kg	230	980	1
Selenium	mg/kg	1100	12000	1
Copper	mg/kg	12000	68000	1
Zinc	mg/kg	81000	730000	1
Cyanide	mg/kg	791	791	1
Phenol	mg/kg	440	440	1
Asbestos	Fibres	NFD	≤0.001	3
Naphthalene	mg/kg	4900	190	4
Acenaphthylene	mg/kg	15000	83000	2
Acenaphthene	mg/kg	15000	84000	1
Fluorene	mg/kg	9900	63000	1
Phenanthrene	mg/kg	3100	22000	2
Anthracene	mg/kg	74000	520000	2
Fluoranthene	mg/kg	3100	23000	2
Pyrene	mg/kg	7400	54000	2
Benzo(a)Anthracene	mg/kg	29	170	2
Chrysene	mg/kg	57	350	2
Benzo(b)Fluoranthene	mg/kg	7.1	44	2
Benzo(k)Fluoranthene	mg/kg	190	1200	2
Benzo(a)Pyrene	mg/kg	5.7	35	2
Indeno(123-cd)Pyrene	mg/kg	82	500	2
Dibenzo(a,h)Anthracene	mg/kg	0.57	3.5	2
Benzo(ghi)Perylene	mg/kg	640	3900	2
TPH C5-C6 (aliphatic)	mg/kg	570000	3200	4
TPH C6-C8 (aliphatic)	mg/kg	600000	7800	4
TPH C8-C10 (aliphatic)	mg/kg	13000	2000	4
TPH C10-C12 (aliphatic)	mg/kg	13000	9700	4
TPH C12-C16 (aliphatic)	mg/kg	13000	59000	4
TPH C16-C35 (aliphatic)	mg/kg	250000	1600000	1
TPH C5-C7 (aromatic)	mg/kg	56000	26000	4
TPH C7-C8 (aromatic)	mg/kg	56000	56000	4





DETERMINAND	UNIT	WITHIN 300 MM COVER SYSTEM (POS)	UNDER HARD STANDING AND >300 MM TO 1.0 M BELOW COVER SYSTEM **	PATHWAY
TPH C8-C10 (aromatic)	mg/kg	5000	3500	4
TPH C10-C12 (aromatic)	mg/kg	5000	16000	4
TPH C12-C16 (aromatic)	mg/kg	5100	36000	4
TPH C16-C21 (aromatic)	mg/kg	3800	28000	1
TPH C21-C35 (aromatic)	mg/kg	3800	28000	1
TPH C5-C6 (aliphatic)**	mg/kg	570000	3200	4
TPH C6-C8 (aliphatic)**	mg/kg	600000	7800	4
TPH C8-C10 (aliphatic)**	mg/kg	13000	2000	4
TPH C10-C12 (aromatic)**	mg/kg	5000	16000	4
TPH C12-C16 (aromatic)**	mg/kg	5100	36000	4
TPH C16-C21 (aromatic)**	mg/kg	3800	28000	1
TPH C21-C35 (aromatic)**	mg/kg	3800	28000	1

* Values based on LQM S4UL for commercial without plant uptake 1% SOM and General Assessment Criteria (GAC) developed by CIEH / LQM Suitable 4 Use Levels with supporting data from SR3, SR7 and existing Tox report where applicable. 1% SOM

** Values based on LQM S4UL for Commercial 1% SOM and General Assessment Criteria (GAC) developed by CIEH / LQM Suitable 4 Use Levels with supporting data from SR3, SR7 and existing Tox report where applicable. 1% SOM

*** Value derived from Category 4 Screening Levels (C4SL) for commercial end use.

Note 1

Asbestos will be screened visually on-site by a qualified environmental consultant and where potential ACM is identified representative samples will be subject to quantitative analysis of %volume by weight. Should any ACM be identified within the soil matrices, further detailed % assessment would be required when the reported laboratory result exceeds the limit of detection for the analytical method at 0.001% by volume (weight).

N.F.D. – No Fibres Detected

0.001% - Soils may contain ≤0.001% asbestos using composite testing to ensure there is no potential risk to human health. This value is present within areas where there may be short term low level exposure of soils containing trace asbestos fibres by construction workers where an appropriate level of asbestos management is employed (dust suppression).

0.1% - Soils at a depth of >1.00m bgl may contain <0.1% asbestos using composite testing where they will be not likely to be disturbed in the future and will therefore be in an area of low sensitivity. Risk assessment completed in accordance with the Asbestos JIWG risk assessment tools.

Undefined – This will be dependent upon soils encountered during the earthworks, which may be placed at depths greater than 1.0m to ensure no potential risk to human health. Risk associated with off-site disposal should be considered against remaining in-situ.

Notes 2

Excludes matrices where free product is observed;

Tier 2 values for POS (resi) used for any imported soils used for cover system;

Commercial Tier 2 GAC modelled to assume no exposure pathway; and,

No viable exposure pathway beneath hard standing and cover system. Exceedance of target level should be subject to further risk assessment.

No soils are to be imported to site that would be classified as Hazardous Waste.

Notes 3

Main Exposure Pathways: 1 = Soil Ingestion, 2 = Dermal Contact & Ingestion 3 = Dust Inhalation 4 = Vapour Inhalation (indoor)

Abbreviations: GAC = General Assessment Criteria, n = number of samples, MC = Maximum Concentration; NA – Not Applicable (no exceedance of assessment criteria); Loc of MC = Location of Exceedances





*Mercury – Based on elemental Mercury

**The Tier 2 GAC for the hydrocarbon fraction is derived from the CIEH assessment for petroleum hydrocarbons Criteria Working Group (CWG) for both aliphatic and aromatic compounds. E3P has utilised the Tier 2 values for aliphatic compounds for the volatile and semi volatile fractions (C5-C12) and the Tier 2 values for aromatic compound for the non-volatile fractions (C12-C35). The comparison of a total (aliphatic/aromatic) compounds to an individual fraction is considered to be a conservative approach and satisfactory for the protection of human health.

