South Tyneside College

SOUTH TYNESIDE COLLEGE - MAIN CAMPUS

Remediation Strategy

009771-WSP-XX-XX-RP-S-0002
FEBRUARY 2024

South Tyneside College

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1 INTRODUCTION

1.1 TERMS OF REFERENCE

WSP UK Ltd (WSP) was instructed by Atkins Realis on behalf of South Tyneside College (the client) to prepare a remediation strategy for a proposed college campus development in South Shields, South Tyneside. The site location is shown in Figure 1 in Appendix A.

1.2 DEVELOPMENT PROPOSALS

The site is proposed to be redeveloped as the new South Tyneside College Main Campus including the following:

- Construction of a multi-story college campus building in the north of the site.
- Creation of soft landscaping and hardstanding areas in the south of the site.

A Grade II listed building in the southern half of the site is proposed to be retained. A proposed development and landscaping layout plan is included as drawing No. 009771-COL-XX-XX-DR-L-005000 in Appendix A.

1.3 OBJECTIVES

A remediation strategy is required to support the planning application for the proposed development and to discharge planning conditions related to contaminated land. The aim of the remediation strategy is to detail the remediation works required to ensure that the site will be considered suitable for its intended end use from a contaminated land perspective in accordance with UK legislation and best practice guidance.

The objectives of the remediation strategy are to specify remedial measures to minimise risks to site users and the environment posed by any identified contaminated land constraints on the site, to specify procedures to follow in the event that unexpected contamination is encountered during the construction phase, and to detail the requirements for independent supervision and verification of the remedial measures.

1.4 LEGISLATIVE CONTEXT AND GUIDANCE

The remediation strategy has been prepared in the legislative context of:

- Part 2A of The Environmental Protection Act (1990); and,
- The National Planning Policy Framework (2021).

The report details remedial measures in general accordance with the following guidance:

- Environment Agency (EA), 'Land Contamination Risk Management' (LCRM), 2020, last updated July 2023;
- EA, Guidance on the Classification and Assessment of Waste (1st edition v1.2.GB) – Technical Guidance WM3, October 2021;
- Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG), Verification Requirements for Cover Systems: Technical Guidance for Developers, Landowners and Consultants, version 4.1, June 2021.

1.5 SOURCES OF INFORMATION

The remediation strategy is based on information from the following reports:

1. WSP, South Tyneside College, Main Campus – Phase 1 Preliminary Geoenvironmental Appraisal, Ref. 70084288_12073, March 2023.
2. WSP, South Tyneside College, Main Campus – Ground Investigation Report & Land Quality Assessment, Ref. 70084288_GIR, February 2024.

The remediation strategy should be read in conjunction with the above reports.

1.6 CONFIDENTIALITY STATEMENT AND LIMITATIONS

The remediation strategy is addressed to and may be relied upon by South Tyneside College.

This report has been prepared for the sole use and reliance of the above-named party. It shall not be relied upon or transferred to any other parties without the express written authorisation of WSP. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party.

The general limitations to the nature of this report are outlined in Appendix B. Ground conditions and areas of contamination have been extrapolated from individual exploratory hole locations, therefore actual below ground conditions may differ from those anticipated locally. Where third-party information has been utilised, it has been taken to be accurate and WSP does not take responsibility for any inaccuracies reported by others. WSP cannot warrant the work of others unless otherwise stated.

2 SITE BACKGROUND

2.1 SITE DETAILS

The site is an irregularly shaped plot of land of ca. 1.6ha located between King Street, to the north, and Coronation Street, to the south, in South Shields town centre, NE33 1DH.

The site is subdivided by East Street, Chapter Row and Barrington Street which cross the site from west to east. Wallis Street and Nelson Street lead south from Barrington Street. A Grade II listed building (16 Barrington Street) is present in the south of the site and will be retained as part of the proposed development.

2.2 SUMMARY OF PREVIOUS ASSESSMENTS

This remediation strategy was prepared based on the findings of the reports summarised below. The remediation strategy should be read in conjunction with the above reports.

2.2.1 WSP PHASE 1 DESK STUDY 2023

WSP prepared a Phase 1 Preliminary Geo-environmental Appraisal (desk study) for the site in 2023 (Ref. 1).

The report identified historical land uses of the site including several phases of mixed residential and commercial development since at least the mid-19th century. A printing works was present in the centre of the site from the mid-1950s until ca. the 1990s. A gas works with a gas holder and a colliery were historically present off-site ca. 70m and 120m to the south respectively. Most recently, buildings were present in the north, centre and south of the site. The buildings were demolished at some point in the early 2020s. The site was identified as a potential bombing target during World War II.

The report indicates the south of the site to be underlain by Made Ground possibly comprising ships' ballast. Made Ground and remnant in-ground obstructions associated with several phases of historical development were identified as likely present across the site. Natural superficial deposits on the site are indicated to comprise Glaciolacustrine Deposits (clays and silts) and Glacial Till. Solid strata are indicated to comprise mudstone, siltstone, and sandstone of the Pennine Middle Coal Measures.

The site is indicated to be underlain by past coal mine workings at depth from 120m below ground level (bgl) and last worked in 1919. Mine entries were not recorded on or near the site.

The Glacial Till is classified as a Secondary Undifferentiated aquifer. The Glaciolacustrine Deposits are classified as Unproductive Strata. The strata of the Pennine Middle Coal Measures are classified as a Secondary A aquifer.

No licensed groundwater abstractions were recorded on or within 2km of the site. No source protection zones were recorded on or within 500m of the site.

The nearest surface watercourse is the River Tyne approximately 210m to the west of the site. There are no licensed surface water abstractions recorded on or with 2km of the site.

The desk study identified the following potential contaminant linkages and associated risks to receptors:

- A high risk to construction workers, and a moderate risk to future site users from exposure to hazardous ground gases in excavations and below ground enclosed spaces.
- A moderate risk to construction workers (principally from asbestos), and a moderate/ low risk to future site users from exposure to airborne asbestos fibres or contaminated soils during earthworks.
- A moderate risk to the Glacial Till (Secondary Undifferentiated Aquifer), and a moderate/ low risk to the bedrock aquifer (Secondary Aquifer) from contaminated soils or groundwater.

Further assessment of the identified potential contaminant linkages through a Phase 2 intrusive ground investigation including a detailed desk-based assessment of risks from unexploded ordnance (UXO) was recommended.

2.2.2 WSP PHASE 2 LAND QUALITY ASSESSMENT 2024

WSP prepared a Phase 2 Ground Investigation Report & Land Quality Assessment for the site in February 2024 (Ref. 2). The assessment included an intrusive ground investigation, and gas/ groundwater monitoring undertaken between 25 September 2023 and 30 January 2024. An exploratory hole location plan is included as Figure 2 in Appendix A.

Made Ground was encountered in all exploratory holes to depths between 1.3m to 4.3m bgl and comprised granular and cohesive deposits including concrete, brick, clinker, sandstone, glass, wood or slag.

Natural superficial deposits comprised Glacial Till with thicknesses between 9.7m to 17.3m, underlain by Glaciofluvial Deposits comprising silty sand, sandy clay or gravel. Bedrock was encountered at depths between 37.1m and 37.5m bgl and comprised mudstone and sandstone. Coal of 0.05m thickness was encountered at 38.10m bgl in one borehole in the north-west of the site, conjectured to be the High Main coal seam.

Evidence of potential contamination encountered during the ground investigation comprised a fragment of asbestos containing material (cement fragment containing chrysotile and crocidolite) within Made Ground at 2.00m bgl in the centre south of the site (TP301), and a slight hydrocarbon odour within Made Ground at 2.90-3.50m bgl in the south of the site (TP304).

Laboratory chemical analysis of soil samples taken during the ground investigation identified dispersed chrysotile asbestos fibres (asbestos content 0.002%) in one sample of Made Ground from 0.50m bgl in the east of the site (BH108). Given the nature of asbestos contamination and the origin and extent of the Made Ground on the site the presence of asbestos fibres or ACM within soils in other areas on the site could not be discounted.

A generic quantitative risk assessment (GQRA) for human health undertaken as part of the assessment identified a polychlorinated biphenyl (PCB) concentration (total congeners ICES 7) in exceedance of the assessment criteria for human health in one sample of Made Ground from 2.10m bgl in the west of the site (BH103). Elevated PCB concentrations were limited to this location and depth, and a plausible exposure pathway to future site users was not considered to be present, given the recorded depth of the contamination and its low volatility. The human health GQRA did not identify any of the other analysed contaminants of potential concern at exceeding concentrations.

A moderate risk to construction workers (particularly during earthworks), and a moderate/ low risk to site neighbours during construction from exposure to asbestos in soils was identified.

A moderate/ low risk to future site users was identified should Made Ground soils containing asbestos remain uncovered at surface. Future site users are most likely to become exposed to asbestos contaminated soils in the proposed soft landscaped areas where they are underlain by Made Ground. Remedial measures were therefore considered required.

A controlled waters risk assessment identified a number of analytes in soil leachate and groundwater at concentrations above the water quality standards (WQS) for controlled waters. However, the identified contaminants are not highly mobile and, given the recorded concentrations and sensitivity of the aquifers, the likelihood of unacceptable impacts to controlled waters was assessed as low. Remedial measures were not considered required.

A ground gas risk assessment undertaken for the site identified a very low risk from hazardous ground gases to the proposed development with a ground gas classification of CS1 recommended for the site. Mitigation measures (i.e. gas protection measures) were not considered required.

2.3 RELEVANT CONTAMINANT LINKAGES

Based on the findings of the ground investigations and risk assessments undertaken, the following relevant contaminant linkages requiring remediation have been identified (Table 2-1).

Table 2-1 - Relevant Contaminant Linkages

Source	Pathways	Receptors	Risk	Comment
Asbestos in Made Ground	Ingestion or inhalation of airborne fibres	Construction workers	Moderate	Construction workers, particularly ground workers, are likely to become exposed to airborne asbestos fibres where present in Made Ground. Management of risks from asbestos in soils during construction will be required.
		Future site users	Moderate/ low	Future site users may become exposed to airborne asbestos fibres where Made Ground remains uncapped at or close to the surface. Remedial measures will be required.
		Site neighbours	Moderate/ low	Given the extent of asbestos contamination in Made Ground recorded to date, the likelihood of the proposed works to impact site neighbours users is low.

3 REMEDIATION STRATEGY

This remediation strategy specifies the measures required to achieve the remediation objectives, the criteria to be used to demonstrate effective remediation, and the requirements to verify the remediation.

3.1 REMEDIATION OBJECTIVES

The remediation objective is to break or reduce the impact to receptors from the identified contaminant linkages, i.e. exposure of construction workers, future site users and site neighbours to asbestos in soils on the site.

In addition, the remediation strategy specifies measures to mitigate risks to human health and the environment from unexpected contamination that may be encountered during construction of the proposed development.

3.2 ROLES AND RESPONSIBILITIES

The remediation works shall be carried out by the contractor appointed to undertake the construction earthworks for the proposed development. The Principal Contractor shall be responsible for the following:

1. Implementing the Remediation Strategy.
2. Working in accordance with a Materials Management Plan for the site, if applicable.
3. Keeping accurate and complete records of remedial works undertaken, including any additional works not specified in the remediation strategy.
4. Ensuring that activities covered by this strategy are undertaken responsibly and in a way that is not likely to cause risks to human health or the environment.
5. Ensuring that waste soils are disposed of in accordance with applicable UK waste legislation.
6. Liaising with the Environmental Consultant as required.
7. Providing all relevant information and documentation required for the remediation verification report.

The remediation works shall be monitored and verified by a suitably qualified and experienced environmental consultant appointed by the client, who shall be responsible for the following:

1. Monitoring of the remediation works to ensure compliance with the remediation strategy.
2. Assessing the risks to receptors from unexpected contamination if encountered, advise the client and Principal Contractor on suitable mitigation measures and liaise with the Local Authority to agree the mitigation measures.
3. Compiling all relevant information and documentation required for the remediation verification and preparation of a remediation verification report in accordance with the remediation strategy.

3.3 HEALTH AND SAFETY

3.3.1 GENERAL

The remediation works shall comply with the Construction Design Management Regulations (CDM) 2015. The client appointed Principal Contractor will have overall responsibility for health and safety management of the proposed remediation works. Prior to works being undertaken appropriate health and safety documentation shall be prepared by the Principal Contractor and any associated

sub-contractors. The documents must include risk mitigation measures for earthworks or maintenance staff involved in remedial works.

Health and safety mitigation measures will include as a minimum the use of personal protective equipment (PPE), site risk assessments and safe working practices appropriate to the task and based on the risks posed by the contamination likely to be encountered.

3.3.2 SPECIFIC CONTROLS RELATING TO ASBESTOS

The Principal Contractor shall be responsible to ensure that a safe working system (including appropriate risk assessment and management plans) is in place to mitigate the risks from encountering asbestos during the works. The remediation and earthworks have the potential to disturb previously unidentified asbestos containing materials (ACMs), therefore an assessment of risk will be required.

An Asbestos Management Plan compliant with the Control of Asbestos Regulations 2012 (CAR-SOIL) should be prepared for the earthworks by the Principal Contractor to address potential risks from asbestos to construction workers during earthworks.

3.3.3 SPECIFIC CONTROLS RELATING TO DUST AND ODOURS

The Principal Contractor shall ensure that the works are carried out in line with Local Authority requirements and in such a way that acceptable levels of dust, fibre and odour emissions are not exceeded.

3.3.4 SPECIFIC CONTROLS RELATING TO UXO

A detailed desk based UXO risk assessment undertaken for the site in preparation for the ground investigation recommended the following measures to mitigate the risk from encountering UXO during intrusive ground works:

- Site specific explosive ordnance safety and awareness briefings (UXO toolbox briefings) to all personnel conducting intrusive works.
- Site specific safety instructions (SSSI) training course.
- Explosive ordnance disposal (EOD) engineer on-site support (watching brief).
- Intrusive magnetometer survey of all pile locations down to the maximum bomb penetration depth.

The Principal Contractor shall prepare a UXO risk assessment for all intrusive construction and earthworks.

3.4 REMEDIATION IMPLEMENTATION

3.4.1 VISUAL INSPECTION OF SOILS

It is recommended that during earthworks in the areas surrounding BH108 and TP301 in which asbestos has been encountered a watching brief is carried out for the presence of asbestos containing materials. Where visual evidence of potential ACM is encountered the appointed environmental consultant shall be informed, and appropriate investigation or mitigating measures implemented. ACM or asbestos containing soils shall be managed in accordance with the Asbestos Management Plan for the site.

3.4.2 CLEAN COVER SOIL SYSTEM

To mitigate the risk from exposure of future site users to asbestos containing in areas where Made Ground is not removed entirely during the earthworks and remains uncovered, i.e. in soft landscaped areas, clean cover soils shall be provided. The aim of the clean cover soils is to prevent future site users from coming into contact with asbestos contaminated Made Ground.

In accordance with the Building Research Establishment (BRE) guidance BRE 465 'Cover Systems for Land Regeneration (2004)' cover soils with a thickness of between 300mm and 600mm are considered appropriate. For cover soil systems with a thickness of 300mm, a visual marker layer (e.g. geotextile) may be required.

Cover soils shall comprise chemically and texturally suitable subsoil and/ or topsoil. Topsoil placed as part of the cover system shall be of at least 150mm thickness (with the balance of the required thickness made up of a suitable subsoil material). The suitability of cover soils as a growing medium and any requirement for increased cover thicknesses (e.g. in areas of proposed tree planting) shall be confirmed by a suitably qualified landscape architect or designer. Based on the landscaping design current at the time of producing this remediation strategy, the soft landscaped areas requiring placement of a clean cover soil system are shown in Figure 3 in Appendix A.

The cover soil system shall be verified as detailed in Section 4.

The design of the clean cover soil system including its thickness, and the proposed methods of verification shall be agreed in advance with the Local Authority.

3.5 MANAGEMENT OF UNEXPECTED CONTAMINATION

The construction works may encounter contamination which has not been previously recorded. Should evidence of potential ground contamination be encountered during the works (e.g. asbestos, free-phase liquids, unusual odours or ground discolouration) the Principal Contractor shall inform the relevant stakeholders (client, Local Authority, and an appointed environmental consultant) and shall undertake the following measures:

- Stop works in the areas where unexpected visual or olfactory evidence of contamination has been observed;
- Liaise with the Local Authority Contaminated Land Officer (via a suitably qualified consultant) to agree appropriate investigation or corrective actions to mitigate potential risks to receptors;
- Undertake appropriate sampling and laboratory analysis of potentially contaminated soils and assess results against appropriate screening criteria;
- Implement pre-agreed Local Authority remedial measures; and,
- Record all actions and correspondence within the remediation verification report.

3.6 MATERIALS MANAGEMENT

3.6.1 EXCAVATIONS, SEGREGATION AND MATERIALS HANDLING

The Principal Contractor shall control and segregate all excavated soils throughout the remediation and earthworks. Excavations shall be supervised by a suitably qualified and experienced person.

Excavated soils shall be visually assessed and segregated into separate temporary stockpiles. Excavations, stockpiles, and soil transport on the site shall be appropriately managed to prevent cross contamination of soils and to prevent the soils from deteriorating in quality.

Details of all soil movements including source areas, receiving areas, temporary stockpile locations and soil volumes shall be recorded during the earthworks.

3.6.2 OFF-SITE DISPOSAL OF WASTE SOILS

Soils excavated on the site that have no pre-defined use will be automatically classified as a waste and will require off-site disposal. Disposal of waste soils shall be managed by the Principal Contractor who will arrange disposal at a suitably licensed waste management facility and provide the necessary waste transfer documentation/consignment notes for inclusion in the remediation verification report.

Prior to off-site disposal, waste soils will require waste classification in accordance with the EA's 'Guidance on the Classification and Assessment of Waste (1st edition v1.2.GB) – Technical Guidance WM3' (October 2021).

For disposal of waste soils at landfill, Waste Acceptance Criteria (WAC) testing will be required.

3.6.3 SUSTAINABLE MANAGEMENT OF SOILS

To enable the reuse of site-won Made Ground within the proposed development, or to allow the import of soils from other sites, it is recommended that a Materials Management Plan (MMP) is prepared, in accordance with the Contaminated Land: Applications in Real Environments (CL:AIRE) guidance 'Definition of Waste: Development Industry Code of Practice' (DoWCoP). An MMP must be declared to and accepted by the EA (via CL:AIRE) prior to excavations or soil import commencing. The MMP will be used to demonstrate that site-won or imported soils are suitable for their proposed use within the development.

4 REMEDIATION VERIFICATION

The remediation works shall be verified by the appointed environmental consultant, who shall prepare a remediation verification report on completion of the works for submission to the Local Authority for approval and discharge of related planning conditions.

4.1 COVER SOIL SYSTEM VERIFICATION

The suitability of the clean cover soil system to meet the remediation objectives will require verification of the chemical and textural suitability of the materials used in the cover soil system, the method of placement, and the final thickness of the cover soil system.

The Principal Contractor shall provide the appointed environmental consultant with details of the origin and volume of the cover soils proposed for use on the site.

4.1.1 CHEMICAL SUITABILITY

Soils proposed to be used in the clean cover soil system shall be sampled at the source prior to import to site or placement, and laboratory chemical analysis of the samples shall be undertaken. Samples shall be analysed for the parameters listed in Table 4-1 and in Appendix C. The proposed scope of analysis and testing frequencies have been based on the Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG) publication 'Verification Requirements for Cover Systems: Technical Guidance for Developers, Landowners and Consultants'.

If sampling and laboratory chemical analysis of the cover soils is not undertaken prior to importation to site, then representative soil samples should be obtained and laboratory chemical analysis undertaken following import to site. Placement of cover system soils should not commence until the suitability of the cover soils has been verified.

Table 4-1 – Cover Soil Laboratory Analysis Requirements

Material Type and Source	Scope of Laboratory Analysis	Testing Frequency
Soils from greenfield source	Toxic metals (incl. arsenic, cadmium, chromium, chromium VI, copper, mercury, nickel, lead, selenium, zinc), PAH (USEPA16), asbestos, pH, soil organic matter (SOM)	1 sample per 150m³, min. 3 samples
Soils from brownfield source (including site-won soils)	As above, plus any site-specific parameters	Between 1 sample per 50m³ to 1 sample per 100m³ dependent on source, min. 6 samples
Quarried material	Toxic metals (as above)	Min. 2 samples
Recycled aggregates (excluding asphalt)	As above, plus asbestos, PAH (USEPA16), total petroleum hydrocarbons (TPH CWG), any site-specific parameters (e.g., phenol, cyanide, BTEX, MTBE)	Min. 1 sample per 500m³

For soils imported to site the scope of the laboratory analysis shall be amended to account for additional contaminants of potential concern that may be present in the imported soils.

The Principal Contractor shall provide the laboratory analysis results to the appointed environmental consultant to assess the chemical suitability of the cover soils. Cover soils imported to site shall be assessed conservatively against suitability criteria protective of a residential land use (excluding plant uptake of contaminants by home-grown produce). Site-won cover soils shall be assessed against suitability criteria protective of a commercial land use. The soil suitability criteria are specified in Appendix C.

Where exceedances of the soil suitability criteria are recorded an assessment of the risks to receptors shall be undertaken (or the soil not used).

4.1.2 COVER SOIL THICKNESS

To verify the required cover soil thickness the Principal Contractor shall survey the elevations of the excavation to formation level prior to placement of cover soils, and the elevations of the surface on completion of the cover soil placement. The Principal Contractor shall provide the appointed environmental consultant with the pre- and post-placement survey drawings for inclusion in the remediation verification report.

The appointed environmental consultant shall verify the thickness of the cover soils and confirm the material types through visual assessment in inspection pits. Cover soil thicknesses shall be measured with a measuring tape or staff and recorded with a photograph of each inspection pit. Inspection pits shall be undertaken on an approximate 25m grid across all soft landscaped areas.

4.2 REMEDIATION VERIFICATION REPORT

On completion of the remediation works, a remediation verification report shall be prepared by the appointed environmental consultant.

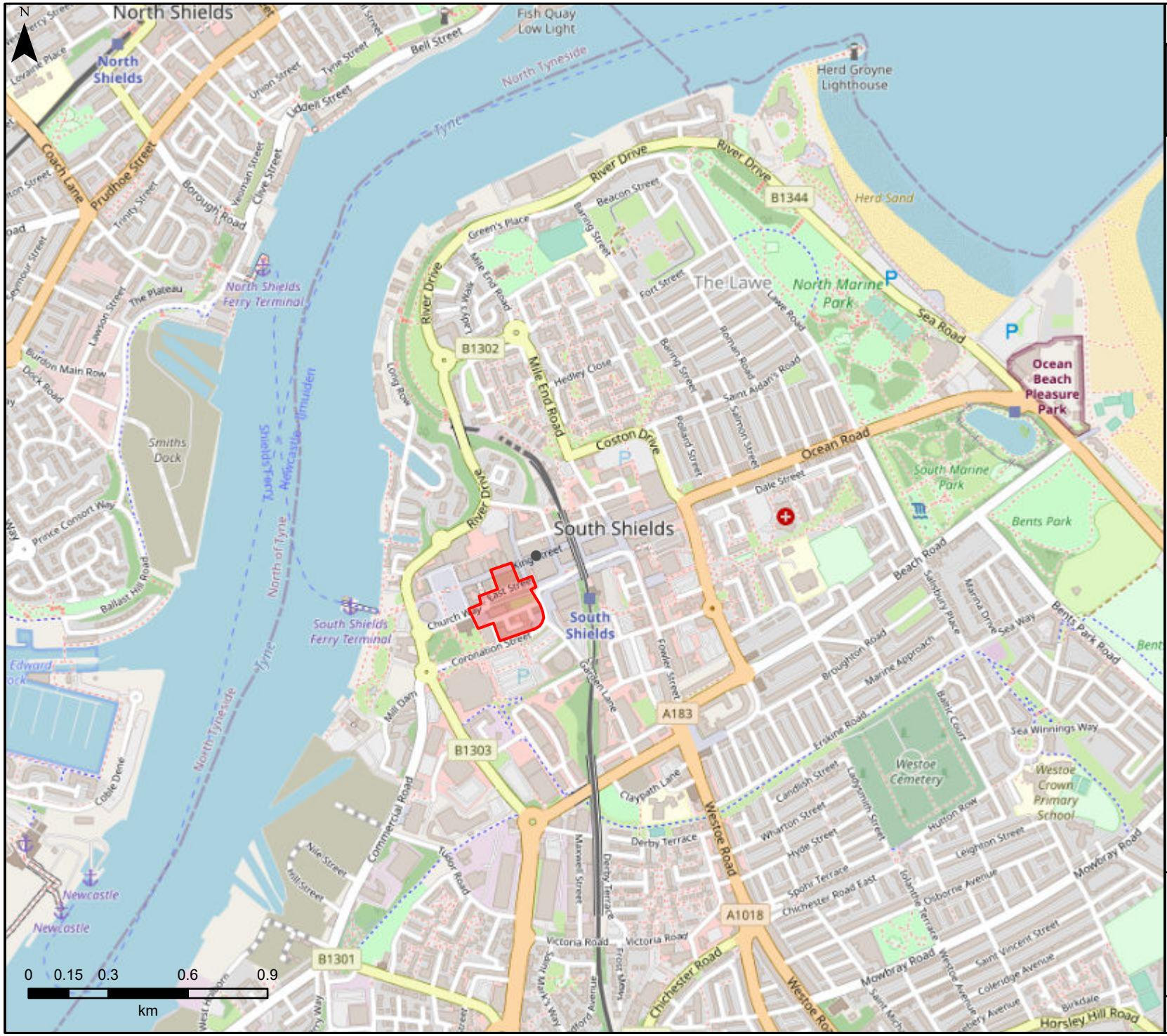
The remediation verification report shall detail all remedial works completed as part of the development of the site. The report shall include:

- Outline description and timeline of the remediation works.
- Records of encountered unexpected contamination and associated remediation works (photographs, logs/ sketches including information on type of contamination, location, and extent)
- All laboratory analysis and screening results for soils used in the clean cover soil system.
- Records of the verification of cover soil depths.
- Pre- and post-earthworks survey drawings.

On completion of the remediation works the remediation verification report will demonstrate that the remediation strategy has been implemented and that the remediation objectives have been achieved. The report will be used to demonstrate that the proposed development is suitable for its intended end use from a contaminated land perspective and that the relating planning conditions can be discharged.

Appendix A

FIGURES



DO NOT SCALE

Information Classification:

CONFIDENTIAL

Information that is only intended for internal distribution among WSP employees, independent consultants, contractors, sub-contractors, clients and authorised third parties.

Title : Figure 1 - Site Location Plan
Author : ArcGIS Web AppBuilder
Scale : 1:20,000
Layout : WSP A4 Landscape
Current Time : 17/03/2023 08:28

Planting Schedule

Trees					
Number	Abbreviation	Species	Specification	Height	Density
1 No.	ACE	Acer campestre 'Elsrijk'	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem 200cm	350-425cm	Counted
5 No.	ACERUOG	Acer rubrum 'October Glory'	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem 200cm	350-425cm	Counted
3 No.	Tree	Alnus incana 'Aurea'	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem 200cm	350-425cm	Counted
3 No.	AMLA	Amelanchier lamarkii	Multi-Stemmed :3 Stems :3x :RB	350-425cm	Counted
6 No.	B pe	Betula pendula	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem 200cm	350-425cm	Counted
1 No.	Tree	Cornus kousa	Selected Standard: 4 brks: 2x: RB: Clear Stem 200cm	300-350cm	Counted
5 No.	Tree	Prunus avium	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem 200cm	400-450cm	Counted
12 No.	PpW	Prunus padus 'Watereri'	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem 200cm	350-425cm	Counted
1 No.	Tree	Prunus serrula tibetica	Multi-Stemmed: Bushy: 3 stems min.: 3x: RB	350-425cm	Counted
2 No.	SoSS	Sorbus aucuparia 'Sheerwater Seedling'	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem 200cm	350-425cm	Counted
13 No.	Tree	Tilia cordata 'Greenspire'	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem 200cm	400-450cm	Counted
9 No.	Tree	Ulmus 'New Horizon'	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem 200cm	350-425cm	Counted

Softworks

Tree planting areas of 600mm topsoil
Based on combined planing depth of 1250mm including

Tree planting areas of 450mm topsoil
Based on combined planing depth of 1110mm

Root barrier to be installed to edge of planting bed

Location of soil cells below hard paving to supplement topsoil volume in planting bed - design and layout tbc

28m3 (16m3 600mm topsoil)
1 No. Sorbus aucuparia 'Sheerwater Seedling'
3 No. Amelanchier lamarkii
44m3 (21m3 600mm topsoil)
1 No. Sorbus aucuparia 'Sheerwater Seedling'
23m3 (11m3 600mm topsoil)
2 No. Prunus padus 'Watereri'
86m3 (47m3 600mm topsoil)
1 No. Prunus padus 'Watereri'
14m3 (7m3 600mm topsoil)
1 No. Betula pendula
23m3 (11m3 600mm topsoil)
1 No. Betula pendula
1 No. Betula pendula
27m3 (13m3 600mm topsoil)
48m3 (20m3 450mm topsoil)
1 No. Acer campestre 'Elsrijk'
1 No. Alnus incana 'Aurea'
24m3 (11m3 600mm topsoil)
15m3 (7m3 600mm topsoil)
1 No. Alnus incana 'Aurea'
2 No. Alnus incana 'Aurea'
Trees in Soil Cells
16m3 (8m3 600mm topsoil)
1 No. Alnus incana 'Aurea'
5 No. Acer rubrum 'October Glory'
20m3 (10m3 600mm topsoil)
35m3 (17m3 600mm topsoil)
34m3 (16m3 600mm topsoil)
49m3 (23m3 600mm topsoil)
5 No. Tilia cordata 'Greenspire'
2 No. Prunus avium
5 No. Tilia cordata 'Greenspire'
3 No. Prunus avium
5 No. Ulmus 'New Horizon'
2 No. Prunus padus 'Watereri'
66m3 (27m3 450mm topsoil)
2 No. Prunus padus 'Watereri'
38m3 (15.5m3 450mm topsoil)
3 No. Betula pendula
3 No. Tilia cordata 'Greenspire'
248m3 (101m3 450mm topsoil)
3 No. Prunus padus 'Watereri'
2 No. Prunus padus 'Watereri'
1 No. Cornus kousa
1 No. Prunus serrula tibetica
110m3 (45m3 450mm topsoil)
210m3 (86m3 450mm topsoil)
4 No. Ulmus 'New Horizon'

0 2 4 6 8 10 12 14 16 18 20m

Rev	Amendments	Date	Drwn	Chkd
P02	Layout amended	18.10.23	AH	EF
P01	First Issue	18.09.23	AH	EF

Project
South Tyneside College

Drawing Title
Detailed Tree Plan

Project No.
2364

Scale @ A0
1:200

Project Status
S3 - For Co-ordination

Drawing No.
009771-COL-XX-XX-DR-L-005000

Revision
P02

London 0203 924 9888
Newcastle 0191 24 24 224
York 01904 925 888
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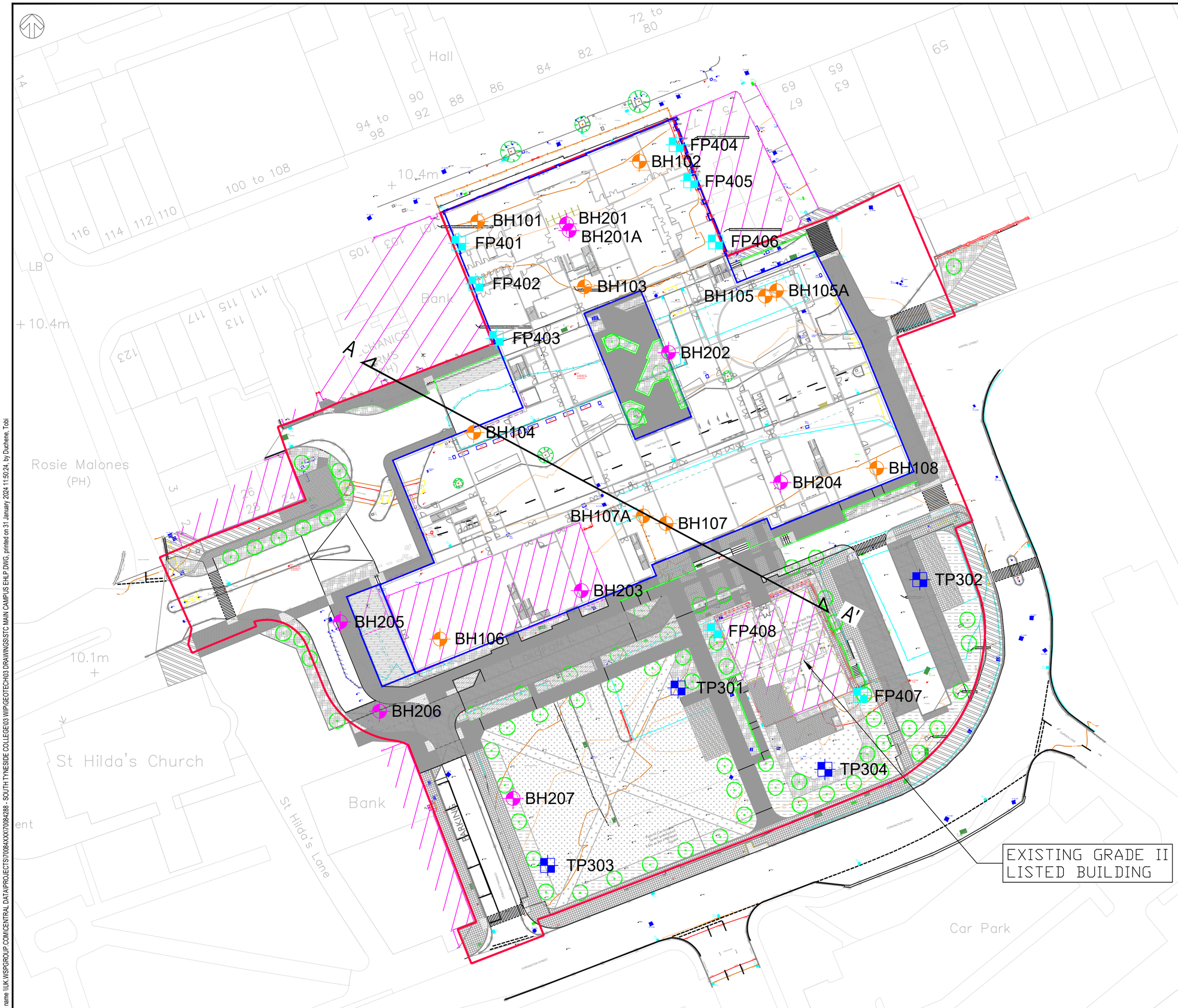

DO NOT SCALE

KEY

- SITE OWNERSHIP BOUNDARY
- FOOTPRINT PROPOSED BUILDING
- INDIC. GEOLOGICAL CROSS SECTION
- BH — BOREHOLE (CABLE PERCUSSION w/ ROTARY FOLLOW-ON)
- BH — BOREHOLE (DYNAMIC SAMPLING)
- TP — TRIAL PIT
- FP — FOUNDATION INSPECTION PIT

DRAWING STATUS: S2 - FOR INFORMATION

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CLIENT: SOUTH TYNESIDE COLLEGE

ARCHITECT:

PROJECT: SOUTH TYNESIDE COLLEGE - MAIN CAMPUS

TITLE: EXPLORATORY HOLE LOCATION PLAN

SCALE @ A2:	CHECKED:		APPROVED:
1 : 500			
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70084288		TD	JAN 2024

DRAWING No: FIGURE 2 REV: P01

DO NOT SCALE

KEY

SITE OWNERSHIP BOUNDARY

FOOTPRINT PROPOSED BUILDING

EXISTING GRADE II LISTED BUILDING

DRAWING STATUS:
S2 - FOR INFORMATION

wsp

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CLIENT:
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ARCHITECT:

PROJECT:
SOUTH TYNESIDE COLLEGE - MAIN CAMPUS

TITLE:
PROPOSED SOFT LANDSCAPED AREAS

SCALE @ A2:	CHECKED:		APPROVED:
1 : 500			
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70084288		TD	JAN 2024

DRAWING No: FIGURE 3

REV: P01

Appendix B

NOTES & LIMITATIONS

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

GENERAL

1. WSP UK Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.

2. Unless explicitly agreed otherwise, in writing, this report has been prepared under WSP UK Limited standard Terms and Conditions as included within our proposal to the Client.

3. Project specific appointment documents may be agreed at our discretion and a charge may be levied for both the time to review and finalise appointments documents and also for associated changes to the appointment terms. WSP UK Limited reserves the right to amend the fee should any changes to the appointment terms create an increase risk to WSP UK Limited.

4. The report needs to be considered in the light of the WSP UK Limited proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

PHASE 1 GEO ENVIRONMENTAL AND PRELIMINARY RISK ASSESSMENTS

Coverage: *This section covers reports with the following titles or combination of titles: phase 1; desk top study; geo environmental assessment; development appraisal; preliminary environmental risk assessment; constraints report; due diligence report; geotechnical development review; environmental statement; environmental chapter; project scope summary report (PSSR), program environmental impact report (PEIR), geotechnical development risk register; and, baseline environmental assessment.*

5. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. WSP UK Limited cannot be held responsible for any disclosures that are provided post production of our report and will not automatically update our report.

6. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, WSP UK Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

7. It should be noted that any risks identified in this report are perceived risks based on the information reviewed. Actual risks can only be assessed following intrusive investigations of the site.

8. WSP UK Limited does not warrant work / data undertaken / provided by others.

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

INTRUSIVE INVESTIGATION REPORTS

Coverage: *The following report titles (or combination) may cover this category of work: geo environmental site investigation; geotechnical assessment; GIR (Ground Investigation reports); preliminary environmental and geotechnical risk assessment; and, geotechnical risk register.*

9. The investigation has been undertaken to provide information concerning either:

- **i.** The type and degree of contamination present at the site in order to allow a generic quantitative risk assessment to be undertaken; or
- **ii.** Information on the soil properties present at the site to allow for geotechnical development constraints to be considered.

10. The scope of the investigation was selected on the basis of the specific development and land use scenario proposed by the Client and may be inappropriate to another form of development or scheme. If the development layout was not known at the time of the investigation the report findings may need revisiting once the development layout is confirmed.

11. For contamination purposes, the objectives of the investigation are limited to establishing the risks associated with potential contamination sources with the potential to cause harm to human health, building materials, the environment (including adjacent land), or controlled waters.

12. For geotechnical investigations the purpose is to broadly consider potential development constraints associated with the physical property of the soils underlying the site within the context of the proposed future or continued use of the site, as stated within the report.

13. The amount of exploratory work, soil property testing and chemical testing undertaken has necessarily been restricted by various factors which may include accessibility, the presence of services; existing buildings; current site usage or short timescales. The exploratory holes completed assess only a small percentage of the area in relation to the overall size of the Site, and as such can only provide a general indication of conditions.

14. The number of sampling points and the methods of sampling and testing do not preclude the possible existence of contamination where concentrations may be significantly higher than those actually encountered or ground conditions that vary from those identified. In addition, there may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

15. The inspection, testing and monitoring records relate specifically to the investigation points and the timeframe that the works were undertaken. They will also be limited by the techniques employed. As part of this assessment, WSP UK Limited has used reasonable skill and care to extrapolate conditions between these points based upon assumptions to develop our interpretation and conclusions. The assumption made in forming our conclusions is that the ground and groundwater conditions (both chemically and physically) are the same as have been encountered during the works undertaken at the specific points of investigation. Conditions can change between investigation points and these interpretations should be considered indicative.

16. The risk assessment and opinions provided are based on currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values. Specific assumptions associated

with the WSP UK Limited risk assessment process have been outlined within the body or associated appendix of the report.

17. Additional investigations may be required in order to satisfy relevant planning conditions or to resolve any engineering and environmental issues.

18. Where soil contamination concentrations recorded as part of this investigation are used for commentary on potential waste classification of soils for disposal purposes, these should be classed as indicative only. Due consideration should be given to the variability of contaminant concentrations taken from targeted samples versus bulk excavated soils and the potential variability of contaminant concentrations between sampling locations. Where major waste disposal operations are considered, targeted waste classification investigations should be designed.

19. The results of the asbestos testing are factually reported and interpretation given as to how this relates to the previous use of the site, the types of ground encountered and site conceptualisation. This does not however constitute a formal asbestos assessment. These results should be treated cautiously and should not be relied upon to provide detailed and representative information on the delineation, type and extent of bulk ACMs and / or trace loose asbestos fibres within the soil matrix at the site.

20. If costs have been included in relation to additional site works, and / or site remediation works these must be considered as indicative only and must be confirmed by a qualified quantity surveyor.

EUROCODE 7: GEOTECHNICAL DESIGN

21. On 1st April 2010, BS EN 1997-1:2004 (Eurocode 7: Geotechnical Design – Part 1) became the mandatory baseline standard for geotechnical ground investigations.

22. In terms of geotechnical design for foundations, slopes, retaining walls and earthworks, EC7 sets guidance on design procedures including specific guidance on the numbers and spacings of boreholes for geotechnical design, there are limits to methods of ground investigation and the quality of data obtained and there are also prescriptive methods of assessing soil strengths and methods of design. Unless otherwise explicitly stated, the work has not been undertaken in accordance with EC7. A standard geotechnical interpretative report will not meet the requirements of the Geotechnical Design Report (GDR) under Eurocode 7. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. The report is likely to represent a Ground Investigation Report (GIR) under the Eurocode 7 guidance.

DETAILED QUANTITATIVE RISK ASSESSMENTS AND REMEDIAL STRATEGY REPORTS

23. These reports build upon previous report versions and associated notes. The scope of the investigation, further testing and monitoring and associated risk assessments were selected on the basis of the specific development and land use scenario proposed by the Client and may not be appropriate to another form of development or scheme layout. The risk assessment and opinions provided are based on currently available approaches in the generation of Site Specific Assessment Criteria relating to contamination concentrations and are not considered to represent a risk in a specific land use scenario to a specific receptor. No liability can be accepted for the retrospective effects of any future changes or amendments to these values, associated models or associated guidance.

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

24. The outputs of the Detailed Quantitative Risk Assessments are based upon WSP UK Limited manipulation of standard risk assessment models. These are our interpretation of the risk assessment criteria.

25. Prior to adoption on site they will need discussing and agreeing with the Regulatory Authorities prior to adoption on site. The regulatory discussion and engagement process may result in an alternative interpretation being determined and agreed. The process and timescales associated with the Regulatory Authority engagement are not within the control of WSP UK Limited. All costs and programmes presented as a result of this process should be validated by a quantity surveyor and should be presumed to be indicative.

GEOTECHNICAL DESIGN REPORT (GDR)

26. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. All the relevant information needs to be provided to allow for a GDR to be produced.

MONITORING (INCLUDING REMEDIATION MONITORING REPORTS)

27. These reports are factual in nature and comprise monitoring, normally groundwater and ground gas and data provided by contractors as part of an earthworks or remedial works.

28. The data is presented and will be compared with assessment criteria.

Appendix C

COVER SOIL SUITABILITY CRITERIA

Suitability Criteria for Site-won Re-used and Imported Soils

Analysis	Units	Assessment Criteria Imported Materials *	Site-won Materials **
Textural Suitability			
Visual/ Olfactory Appearance			
Evidence of potential contamination	No units	No staining, free product or hydrocarbon odours	
Inclusions	No units	No unsuitable materials, e.g. glass, timber, plastic etc.)	
Asbestos			
Asbestos containing materials	No units	No visible fragments	
Asbestos fibres	No units	No detectable fibres	
Chemical Suitability			
Metals			
Arsenic	mg/kg	35	635
Cadmium	mg/kg	87	223
Chromium	mg/kg	1590	9550
Chromium, Hexavalent	mg/kg	4.5	24
Copper	mg/kg	7520	69800
Lead	mg/kg	188	1390
Mercury	mg/kg	56	1110
Nickel	mg/kg	181	1710
Selenium	mg/kg	430	12300
Zinc	mg/kg	40400	1050000
Polycyclic Aromatic Hydrocarbons (PAH)			
Naphthalene	mg/kg	2.3	193
Benzo(a)pyrene	mg/kg	1.7	38
Volatile Organic Compounds (VOCs)			
Methyl Tertiary Butyl Ether (MTBE)	mg/kg	104	7480⁺
Benzene	mg/kg	0.38	27⁺
Toluene	mg/kg	868	56300⁺
Ethylbenzene	mg/kg	83	5920⁺
p/m-Xylene	mg/kg	79	5920⁺
o-Xylene	mg/kg	79	5920⁺
TPH Criteria Working Group (TPH CWG)			
Aliphatics >C5-C6	mg/kg	42⁺	3190⁺
Aliphatics >C6-C8	mg/kg	104⁺	7780⁺
Aliphatics >C8-C10	mg/kg	27⁺	2000⁺
Aliphatics >C10-C12	mg/kg	132⁺	9690⁺
Aliphatics >C12-C16	mg/kg	1030⁺	58800⁺
Aliphatics >C16-C35	mg/kg	53000⁺	1580000⁺
Aliphatics >C35-C44	mg/kg	53000⁺	1580000⁺
Aromatics >EC5-EC7	mg/kg	372⁺	26200⁺
Aromatics >EC7-EC8	mg/kg	853⁺	56100⁺
Aromatics >EC8-EC10	mg/kg	47⁺	3460⁺
Aromatics > EC10-EC12	mg/kg	248⁺	16200⁺
Aromatics > EC12-EC16	mg/kg	1430⁺	36200⁺
Aromatics > EC16-EC21	mg/kg	1300⁺	28200⁺
Aromatics > EC21-EC35	mg/kg	1330⁺	28400⁺
Aromatics >EC35-EC44	mg/kg	1330⁺	28400⁺
Total Aliphatics & Aromatics C5-C44	mg/kg	1000	1000
TPH Hazard Index	No units	1	1

* WSP derived GAC based for residential land use not including plant uptake from home-grown produce
** WSP derived GAC based commercial land use
⁺ Assumed soil organic matter (SOM) content 1.0%

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