

REMEDIATION VALIDATION REPORT FOR THE INDUSTRIAL DEVELOPMENT ON LAND AT PARSON'S YARD, WASHINGTON



PROJECT NUMBER	3955			
PROJECT TITLE	Parson's Yard Depot Site			
CLIENT	Esh Construction Esh House Bowburn North Industrial Estate Bowburn Durham DH6 5PF			
REPORT TITLE	Remediation Validation Report for the Industrial Development on Land at Parson's Yard, Washington			
REPORT REFERENCE	REPORT REFERENCE 3955OR08			
REVISION	Date	Checked		
Rev00	16/10/2023	CM		

CONTENTS

1	INTRODUCTION1
2	SOURCES OF INFORMATION1
3	BACKGROUND INFORMATION2
3.1	Site Location and Description2
3.2	Site History
3.3	Summary of Investigation Results2
4	REMEDIATION PROPOSALS3
5	PARTIES TO THE RECLAMATION WORKS4
5.1	Parties to the Contract4
5.2	Parties to be Consulted5
6	ENABLING WORKS5
6.1	General5
7	REMEDIATION5
7.1	General5
7.2	Treatment of Below Ground Tanks6
7.3	Treatment of Unidentified Contamination Hotspots6
8	BUILT DEVELOPMENT7
8.1	Gas Protection Measures
8.2	Concrete Protection and Design
8.3	Services
9	RECLAMATION VALIDATION STATEMENT8
10	CONCLUSIONS OF REPORT8
11	REFERENCES9



APPENDICES

- 1 DRAWINGS
- 1.1 FWS DRAWINGS

39550D01 SITE LOCATION PLAN

1.2 EXTERNAL DRAWINGS

2021002 002 E EXTERNAL WORKS LAYOUT

2021002 001 B SITE PREPARATION

- 2 SITE FORMATION LEVEL INSPECTION AND PHOTOGRAPHIC RECORD
- 3 SCHEDULE OF DISPOSAL WASTE TRANSFER NOTES
- 4 TREATMENT OF BELOW GROUND TANKS
- 4.1 METHOD STATEMENT AND JOB COMPLETION NOTE
- 4.2 VERIFICATION REPORT
- 5 HOTSPOT LOCATION PLAN AND POST-EXCAVATION PHOTOGRAPHIC RECORD
- 6 WASTE TRANSFER NOTES FOR DISPOSAL OF EXCAVATED HOTSPOT MATERIAL
- 7 VALIDATION REPORT FOR GAS PROTECTION MEASURES
- 8 CONCRETE DESIGN CERTIFICATE
- 9 DATASHEETS FOR PROPOSED IN-GROUND SERVICE PIPEWORK
- 10 NOTES ON LIMITATIONS

REMEDIATION VALIDATION REPORT FOR THE INDUSTRIAL DEVELOPMENT OF LAND AT PARSON'S YARD, WASHINGTON

1 INTRODUCTION

FWS Consultants Ltd (FWS) has been instructed by Esh Construction (the 'Client') to audit the enabling and remediation works for the commercial development on land at Parson's Yard, Washington (the 'site'), as shown in Drawing 3955OD01, Appendix 1.1 and Portland Consultants Drawing 2021002 002E, Appendix 1.2.

Previous site investigations (Refs. 2 to 5, 9 to 11) have identified localised low level contamination within cohesive made ground and natural till associated with the buried tanks related to isolated small spillage and leakage, however, no elevated concentrations above the GAC values for a commercial development were recorded. Isolated elevated levels of heavy metals (copper and lead) and hydrocarbons (TPH and PAH) have been identified in shallow perched groundwater around the buried tanks were identified. Elevated concentrations of soil gas (carbon dioxide and methane) as well as depleted oxygen have been recorded by the monitoring undertaken to date that would present a risk to future users in confined spaces and property.

FWS prepared a Remediation Strategy (Ref. 6), which were submitted to and approved by the Regulators.

The remediation works were carried out by Esh Civils Ltd between 25 June 2021 and 9 February 2023.

This Remediation Validation Report details the remediation works undertaken, the verification testing carried out to validate the remediation, verification of the installation of gas protection measures to the buildings, validation of the concrete design and use of contamination resistant materials to services.

2 SOURCES OF INFORMATION

Previous investigations of the site include: -

INVESTIGATION	PREPARED BY	DATE	REF.
Preliminary Investigation Report Carried Out at Parsons Depot, Washington (31528)	lan Farmer Associates	2018	1
Phase 2 Ground Investigation for The Proposed Industrial Redevelopment on Land at Parsons Yard, Washington (3747OR01)	FWS	2020	2
Assessment Of Gas Monitoring Results for The Proposed Industrial Redevelopment on Land at Parsons Yard, Washington (3747OR02)	FWSs	2020	3
Phase 2 Additional Ground Investigation for Industrial Development On Land At Parson's Yard, Washington (3955OR01)	FWS	2021	4
Assessment Of Gas Monitoring Results for The Proposed Industrial Redevelopment on Land at Parsons Yard, Washington (3955OR02Rev02)	FWS	2021	5
Remediation Strategy for Industrial Development on Land at Parson's Yard, Washington (3955OR03Rev02)	FWS	2021	6
Site Inspection Record of tanks decommissioning (3955OR04)	FWS	2022	7
Validation Report for Gas Protection Measures (GEOL21-8695)	Geol Consultants	2022	8

INVESTIGATION	PREPARED BY	DATE	REF.
Additional Ground Investigation of Hydrocarbon Hotspot for Commercial Development on Land at Parson's Depot, Washington (3955 OR07)	FWS	2023	9
Technical Note on Fuel Tanks at Parsons Yard(3955OR09)	FWS	2023	10
Supplementary Ground Investigation For Commercial Development On Land At Parson's Depot, Washington(3955OR10)	FWS	2023	11

3 BACKGROUND INFORMATION

3.1 Site Location and Description

The 2.6 ha site at National Grid Reference 429390E, 557630N is situated 1.5 km north of Washington centre, as shown in Drawing 39550D01, Appendix 1.1. The site is generally flat and slopes gently from an elevation of approximately 92.5 m AOD in the west to 92.3 m AOD in the east with a slope down to the site entrance in the southeast of the site to around 90.5 m AOD. Former buildings in the south and east of the site have been demolished, and associated foundations and structures removed and replaced with a clay fill. The remainder of the site surfacing comprises concrete hardstanding that is to be mostly retained.

Buried tanks with fuel pumps were reported in the east of the site that are reported to have contained fuel (Ref. 4). A pesticide tank has been removed from the eastern boundary of the site and an area used as a fuel store was also cleared.

3.2 Site History

As identified in the Desk Study (Ref. 1), the site was open land from at least the mid-1850s, which has then been developed with a row of terraced house in the southeast which are believed to have been removed by 1975 when the former depot first appeared on available historical plans.

3.3 Summary of Investigation Results

Ground Conditions Summary

From the ground investigations undertaken (Refs. 2, 4, 9 and 11), the ground investigations determined generally thin granular made ground in the west (0.2 to 1.0 m thick) becoming thicker and mainly cohesive in the east (1.0 to 2.5 m thick) under the reinforced concrete hardstanding of between 0.16 and 0.36 m thick. Thick cohesive made ground (up to 2.8 m) was identified within the former building footprint. Across most of the site, the made ground was underlain by cohesive superficial deposits onto rockhead at a depth of between 2.1 to 5.5 m below ground level (bgl), except in the west where rockhead directly underlies the made ground at depths of between 0.4 to 0.95 m bgl. To the north of the buried tanks, thick made ground to 3.5 m bgl was recorded comprising reworked sandy gravelly clay with organic clays between 2.4 and 2.9 m bgl.

Bedrock comprises weak destructured grey mudstone and brown weak to moderately strong sandstone from the Pennine Middle Coal Measures. No evidence of coal was encountered to a depth of 12.4 m bgl.

The site is not in a Coal Authority High Risk Development Area and the site is not within an area where shallow coal seams are present. The shallowest worked coal is at 130 m bgl.

Localised, isolated perched groundwater was noted within the made ground with no significant ground water identified in the shallow cohesive superficial deposits or shallow bedrock.

Contamination

Elevated concentrations of chloride within the made ground present a potential corrosion risk to in ground metallic services and other structures (i.e. rebars).

Hydrocarbon contamination, associated with the fuel pump and below ground tanks and interceptor present a potential low to moderate contamination risk to the endusers, building, services, landscaped areas in the development and to the wider environment.

Depleted oxygen in the soil gas atmosphere presents a potential asphyxiation moderate risk to construction and maintenance workers in below ground excavations and service chambers.

Elevated levels of methane and carbon dioxide presents a potential moderate to high risk to site users, construction and maintenance workers in confined spaces and to property. A Characteristic Situation 2 soil gas conditions was determined following completion of the gas monitoring period.

The made ground and natural soils on site contained no significant concentrations of contaminants that present a phytotoxic risk to plants and landscaped areas. However, the made ground materials are not considered to be suitable as a growing medium for plants in any proposed landscaped areas.

No gross widespread contamination has been proven and only isolated low level hydrocarbon contamination is anticipated on site, therefore, the ground and groundwater conditions are expected to present a low risk to the Controlled Waters/Water Environment.

4 REMEDIATION PROPOSALS

As detailed in the Reclamation Strategy (Ref. 6), the enabling works were to meet the following reclamation requirements: -

- 1. Normal brownfield precautions are to be adopted when working on site.
- 2. Site inspection of formation level.
- 3. Treatment of unidentified contamination hotspots,
- 4. Treatment of below ground tanks.
- 5. All built development requires installation of gas protection measures in compliance with Characteristic Situation 2, raised to Characteristic Situation 3 should the proposed building location be moved to the northwest of the site.
- 6. In-ground concrete in contact with made ground materials will be designed to Design Sulphate Class DS-2, ACEC Class AC-2 in accordance with current guidance (Ref. 12).
- In-ground metallic structures or pipework shall be chloride resistant and in-ground services should be hydrocarbon resistant or placed within a service trench formed from clean inert materials.

5 PARTIES TO THE RECLAMATION WORKS

The following are details of interested parties within the development: -

5.1 Parties to the Contract

Employer

Esh Construction

Esh House

Bowburn North Industrial Estate

Bowburn

Durham

DH6 5PF

Contact Tel: 0191 377 4570

Consulting Engineer

Portland Consulting Engineers Bankside, 10

The Watermark

Newcastle-upon-Tyne

NE11 9SY

Contact Tel: 0191 461 9770

Environmental Engineer

FWS Consultants Ltd

Unit 2 City West Business Park

St Johns Road

Meadowfield Industrial Estate

Durham

County Durham

DH78E

Contact Tel: 01388 420633

Main Contractor

Esh Civils

Esh House

Bowburn North Industrial Estate

Bowburn

Durham

DH6 5PF

Contact Tel: 0191 377 4570

5.2 Parties to be Consulted

Council

Sunderland City Council Civic Centre Burdon Road Sunderland SR2 7DN Tel 0191 520 5555

Environment Agency

North East Area Office Tyneside House Skinnerburn Road Newcastle Business Park NEWCASTLE UPON TYNE NE4 7AR

Contact Tel: 0191 203 4143

6 ENABLING WORKS

6.1 General

The site enabling works commenced on 25 June 2021 and comprised: -

- Site preparation and clearance.
- Inspection of formation level.

Site Preparation and Clearance

Site clearance included the excavation and partial removal of the concrete hardstanding ground surface, removal of the demolition stockpiles that resulted from the demolition of the main building in the south of the site and the excavation and removal of limited topsoil associated with soft landscaped areas in the site.

Following the site clearance, the site formation level was prepared. Inspection records and photographs of the site formation level are presented in Appendix 2 and a schedule of the transfer notes for the material excavated and removed from site during these works are presented in Appendix 3.

7 REMEDIATION

7.1 General

The remediation works commenced on 15 February 2022 and included the following activities: -

- Following completion of the enabling works, decommissioning of the buried fuel tanks in the east of the site.
- Treatment of unidentified contamination hotspots within the vicinity of the tanks and general made ground.

7.2 Treatment of Below Ground Tanks

Treatment of the below ground tanks in the east of the site was caried out on the 15 February 2022. WO Silmon was the contractor appointed to carry out the works for which the method statement has been provided by Lees Industrial Services. The works including emptying of limited remaining fuel, cleaning of tanks of any residual fuel and then infilled with BritFoam®, a resin based hard foam.

The works were also carried out under the supervision of FWS Consultants for which a site inspection record was issued.

The method statement, job completion notes and FWS verification report are presented in Appendix 4.

7.3 Treatment of Unidentified Contamination Hotspots

During preparation works in the east of the site for the formation level of a proposed car park area an approximate 100 mm cast iron vertical pipe was discovered. The area was excavated out and a buried 1 m long brick lined chamber was identified at a depth of around 1 to 1.5 m bgl. The pipe was snapped at a horizontal connection with the chamber and limited oily water escaped into the excavation from the chamber/pipe. It was observed by site personnel that the chamber was filled with stone.

FWS attended site on the 9 December 2022 to view this excavation and it was identified at this time that isolated limited hydrocarbons had also been noted during the site strip around 5 to 10 m north of this location. An additional targeted investigation was carried out on 12 December 2022 (Ref. 9).

The investigation stated that any grossly contaminated material identified should be traced and grubbed out along with any buried services, drains and inspection chambers and replaced by suitable clean material. Inspection records for the removal of the materials should be recorded to confirm no hydrocarbons contamination or relict drainage remains on the site. Any perched water impacted by hydrocarbons will also be pumped out and suitability disposed of offsite to a suitable waste facility.

Documentation for all wastes disposed of off-site (soils and groundwaters) including details of removed soils/groundwaters, locations of where materials were taken from the site, quantities, waste transfer notes, landfill details and waste carrier certificates should be collated as set out in the Remediation Strategy (Ref. 6).

A plan showing the hotspot locations along with photographs taken following the excavation of the impacted material are presented in Appendix 5 and a record of the waste transfer notes for the removal of the excavated hazardous material are presented in Appendix 6. It was observed by site personnel that there was no visual or olfactory evidence remaining at the hotspots following the excavation of this material.

8 BUILT DEVELOPMENT

8.1 Gas Protection Measures

Based upon the results of the ground investigations, the proposed commercial development was to be designed to incorporate gas protection measures in accordance with Characteristic Situation 2 conditions (CIRIA C665, Ref. 13). For Characteristic Situation 2 gas conditions a minimum point score of 2.5 for Type C Buildings and 1.5 for Type D Buildings must be achieved for adequate gas protection, which can be achieved from a range of measures as including a structural barrier (floor and substructure design), ventilated sub floor void and propriety gas resistant and vapour proof membrane.

The properties include:-

- In-situ cast reinforced concrete slab 0.5 points; and,
- Hazardous ground gas barrier membrane placed below the concrete slab (Visqueen Gas Barrier with overlaps joined by double welded seam joint, double sided tape used between the gas membrane and Visqueen Ultimate Geoseal, top hats reinforced with Visqueen Gas Resistant Self-Adhesive Membrane, Visqueen Gas Resistant Damp Proof Course used for partition walls and Visqueen Liquid Gas Membrane for sealing of service ducts) – 2 points.

On the basis that the gas regime (Characteristic Situation 2) was simple and design complexity (limited-service penetrations, gas membrane and floor slab) was simple, invasive testing was not deemed necessary.

In accordance with CIRIA C735 (Ref. 13), a validation report was prepared by an Independent Verifier (Geol Consultants Ltd), including all product datasheets, which indicated that the gas protection measures had been suitably installed. A copy of this report is presented in Appendix 7.

8.2 Concrete Protection and Design

Based upon the results of the ground investigation, it was recommended that all concrete should be designed to Design Sulphate Class DS-2 and ACEC Class AC-2 in accordance with BRE Special Digest 1:2005, Concrete in Aggressive Ground.

Tarmac Trading Limited produced a concrete design that was reviewed and agreed as appropriate by Portland Consulting Engineers. The concrete design certificate is included in Appendix 8.

8.3 Services

The results of the ground investigation recommended that any metal in-ground pipework should be chloride resistant. No metal pipework was installed as part of the development. All other pipe works were reported to have been barrier pipe. Details of the agreed pipework design are provided in Appendix 9.



9 RECLAMATION VALIDATION STATEMENT

Based on the results of the validation testing and observations recorded during site visits and information provided by the Client, it is confirmed that the remediation works have been carried out in accordance with the Remediation Method Statement (Ref. 6).

10 CONCLUSIONS OF REPORT

The remediation works undertaken as part of the proposed commercial development on land off Parsons Yard, Washington have been validated from audited records collated during the works. From the works undertaken and the records/documents provided for this report it is validated that the remediation has been undertaken in accordance with the Remediation Method Statement.

A FRY

SENIOR CONSULTANT

C MILLER DIRECTOR

emmiller.

11 REFERENCES

- 1 Ian Farmer Associates, July 2018. Preliminary Investigation Report. Ref: 31528.
- FWS Consultants, April 2020. Phase 2 Ground Investigation for the Industrial Development on Land at Parson's Yard, Washington. Ref: 3747OR01.
- FWS Consultants, September 2020. Assessment of Gas Monitoring Results for the Proposed Industrial Redevelopment on Land at Parson's Yard, Washington. Ref: 3747OR02.
- FWS Consultants, June 2021. Phase 2 Additional Ground Investigation for Industrial Development on Land at Parson's Yard, Washington. Ref: 3955OR01.
- FWS Consultants, July 2021. Assessment of Additional Gas Monitoring Results for the Proposed Industrial Redevelopment on Land at Parson's Yard, Washington. Ref: 3955OR02Rev02.
- FWS Consultants, August 2021. Remediation Strategy for Industrial Development on Land at Parson's Yard, Washington. Ref: 3955OR03.
- FWS Consultants, February 2022. Site Inspection Record. Ref: 3955OR04.
- Geol Consultants, August 2022. Validation Report for Gas Protection Measures. Ref. GEOL21-8695
- **9** FWS Consultants, January 2023. Additional Ground Investigation of Hydrocarbon Hotspot for Commercial Development on Land at Parson's Depot, Washington. Ref: 3955OR07.
- 10 FWS Consultants, March 2023. Technical Note, Fuel Tanks Parson's Yard. Ref: 3955OR08
- FWS Consultants, June 2023. Supplementary Ground Investigation For Commercial Development On Land At Parson's Depot, Washington. Ref: 3955OR09
- BRE, 2005. Concrete in Aggressive Ground, BRE Special Digest 1.
- CIRIA C665, 2007. Assessing Risks Posed by Hazardous Ground Gases to Buildings.
- BS8485: 2007. Code of Practice for the Characterisation and Remediation from Ground Gas in Affected Developments. BSI.
- CIRIA C735, 2014. Good Practice on the Testing and Verification of Protection Systems for Buildings against Hazardous Ground Gases.

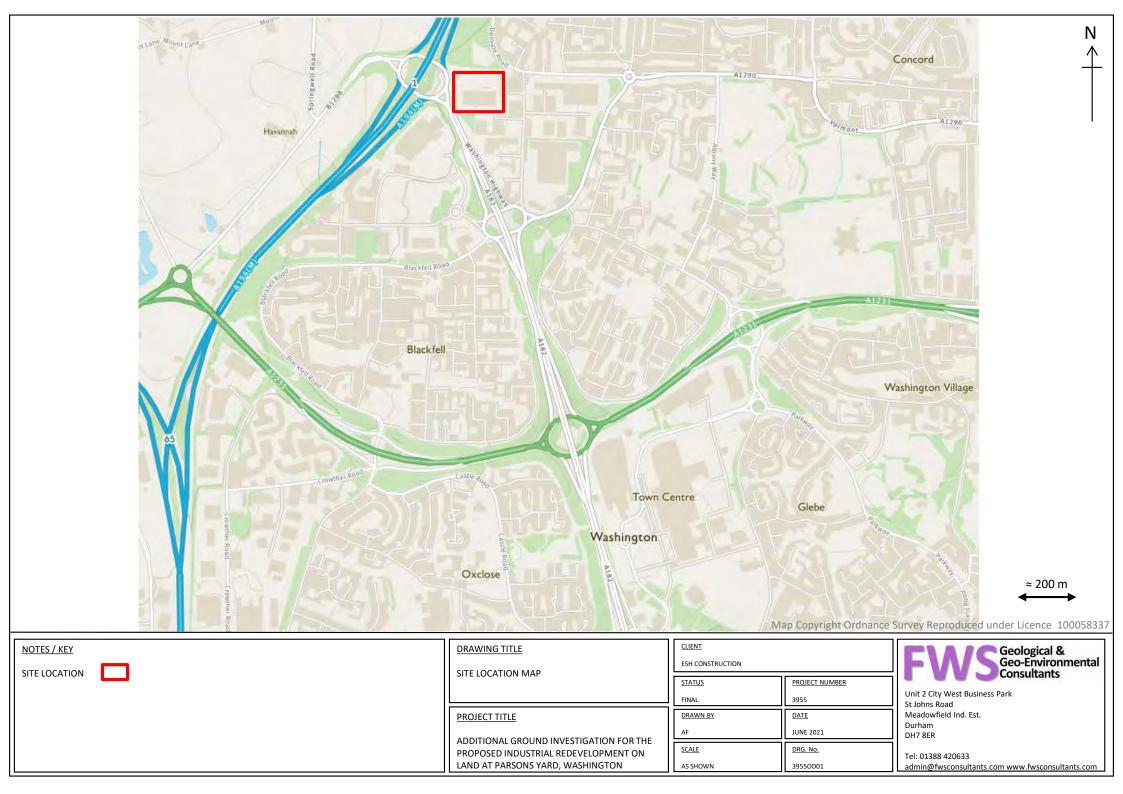
APPENDIX 1

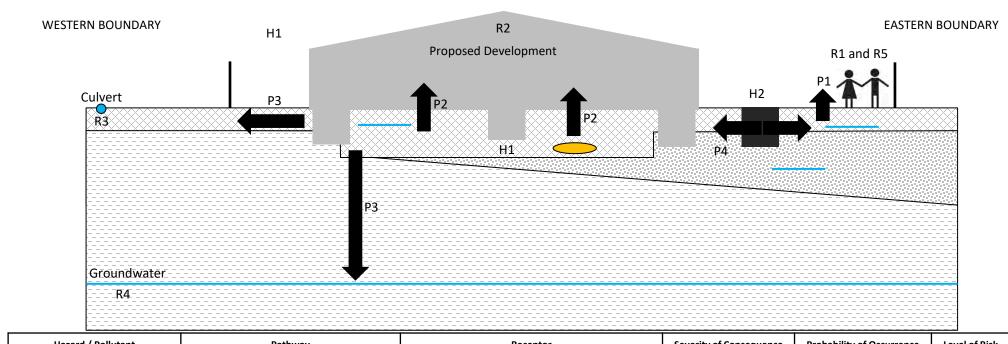
DRAWINGS



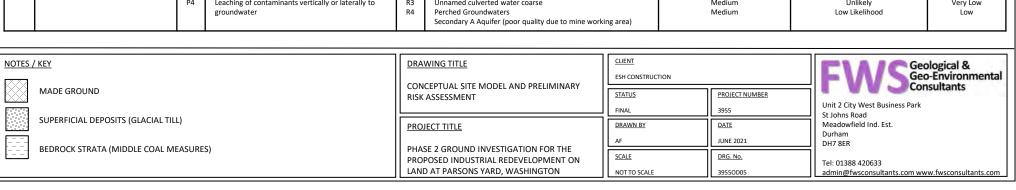
APPENDIX 1.1

FWS DRAWINGS





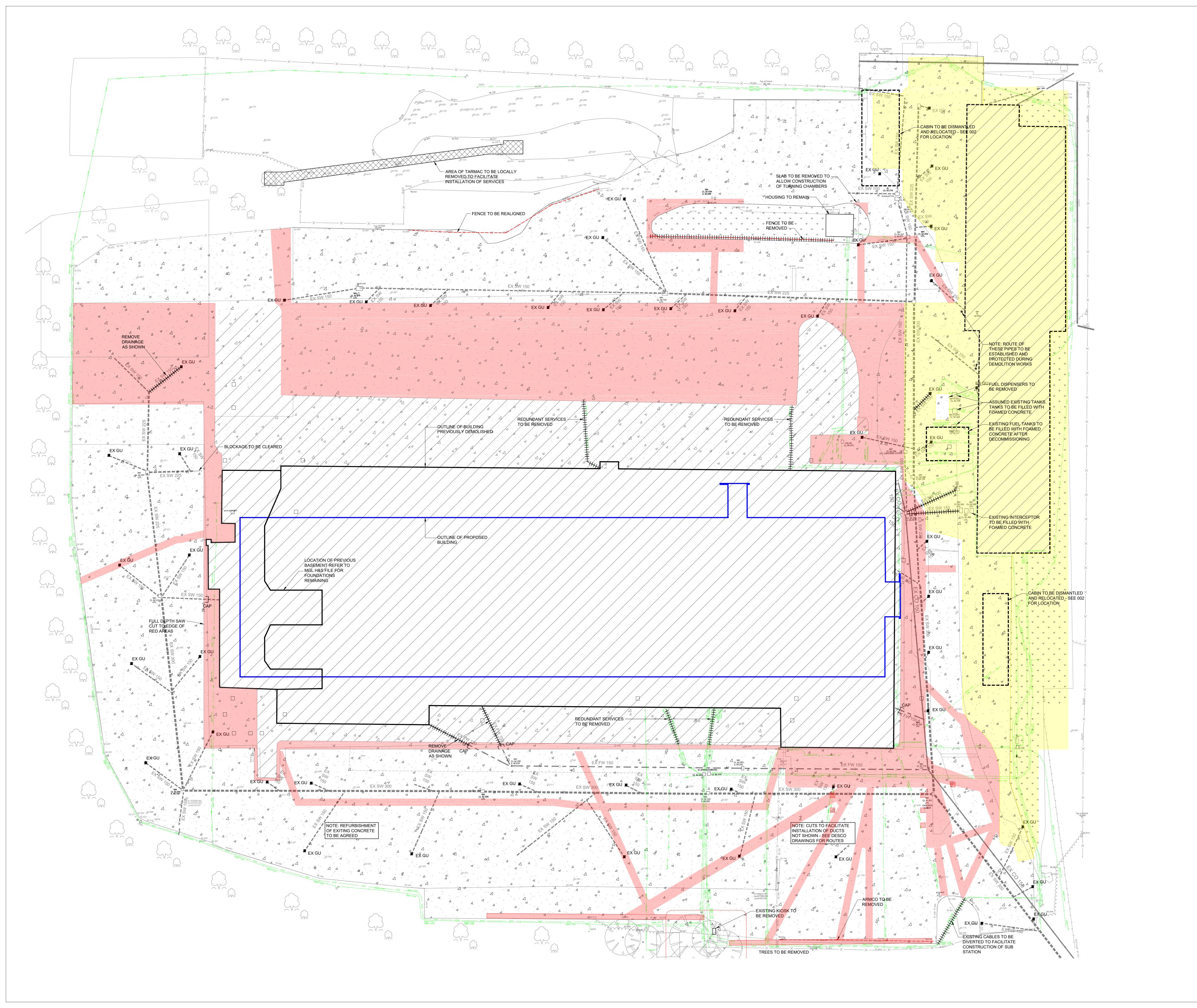
	Hazard / Pollutant		Pathway		Receptor	Severity of Consequence	Probability of Occurrence	Level of Risk
H1	General made ground (heavy metals, hydrocarbons, asbestos, pH, sulphates, chloride, methane, carbon dioxide)	P1	Inhalation, ingestion and dermal contact	R1 R5	Future End Users Construction Workers	Medium	Likely	Moderate
		P2	Direct contact	R6	Plants/Landscaping	Mild	Likely	Low
		P4	Leaching of contaminants vertically or laterally to groundwater	R3 R4	Unnamed culverted water coarse Perched Groundwaters Secondary A Aquifer (poor quality due to mine working area)	Medium Medium	Unlikely Low Likelihood	Very Low Low
		Р3	Soil gas or soil vapours pooling within the structures	R2	Property (Human Health in confined spaces)	Severe	Likely	High
H2	Buried fuel tanks (hydrocarbons, heavy metals, methane, carbon dioxide, hydrocarbon vapours,)	P1	Inhalation, ingestion and dermal contact	R1 R5	Future End Users Construction Workers	Medium	Likely	Moderate
		Р3	Soil gas or soil vapours pooling within the structures	R2	Property (Human Health in confined spaces)	Severe	Likely	High
		P4	Leaching of contaminants vertically or laterally to groundwater	R3 R4	Unnamed culverted water coarse Perched Groundwaters Secondary A Aquifer (poor quality due to mine working area)	Medium Medium	Unlikely Low Likelihood	Very Low Low





APPENDIX 1.2

CLIENT DRAWINGS



Health and Safety Notes:

The following key residual health and safety risks have not been eliminated by design and are identified below:

- Refer to Design Risk Assessment: 2021002-DRA

Safe methods and systems of work remain the responsibility of the contractor.

> specification: 2021002/SP/002 Site Preparation and Earthworks **LEGEND**

This drawing shall be read in conjunction with the following

DENOTES EXISTING SOFT

DENOTES EXISTING CONCRETE

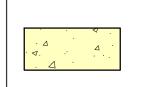
Ψ Ψ Ψ

LANDSCAPING TO BE REMOVED

TO REMAIN

DENOTES AREA OF RUBBLE FOLLOWING DEMOLITION OF MAIN BUILDING

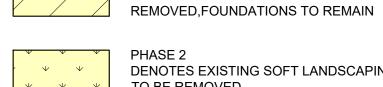
DENOTES EXISTING CONCRETE TO BE FULLY REMOVED



DENOTES EXISTING CONCRETE TO BE



FULLY REMOVED, SUBBASE TO REMAIN DENOTES BUILDING TO BE



PHASE 2 DENOTES EXISTING SOFT LANDSCAPING TO BE REMOVED +++++++++++++ DENOTES EXISTING FENCE LINE, KERB LINE OR REDUNDANT SERVICE TO BE REMOVED

FOR GEOTECHNICAL INFORMATION REFER TO FWS GEOTECHNICAL AND ENVIRONMENTAL GROUND INVESTIGATION REPORT REF: 3747

NOTE: ALL EXISTING DRAINAGE TO BE CLEANED AND JETTED ON COMMENCEMENT OF WORKS. . NOTE: ALL EXISTING CHAMBERS IN PROPOSED AREAS

TO BE RESET TO SUIT (MANHOLES, EARTH RODS, DRAW

PITS, TELECOMS ETC) NOTE: ANY OBSTRUCTION TO BE FILLED WITH 6F2, COMPACTED IN LAYERS AS PER SPECIFICATION FOR HIGHWAY WORKS

B Construction issue A Construction issue

BG MG MG 31/03/21 BG MG MG 09/03/21

MQ MG MG 18/08/20

By Chk App Date

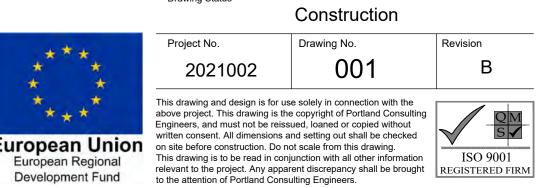
10 Bankside, The Watermark, Gateshead, Tyne & Wear, NE11 9SY T: 0191 4619770 W: www.portlandconsulting.co.uk F: 0191 4603028 E: info@portlandconsulting.co.uk

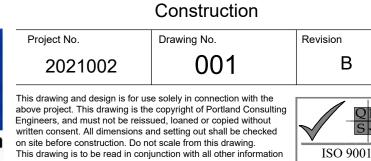
Client CONSTRUCTION

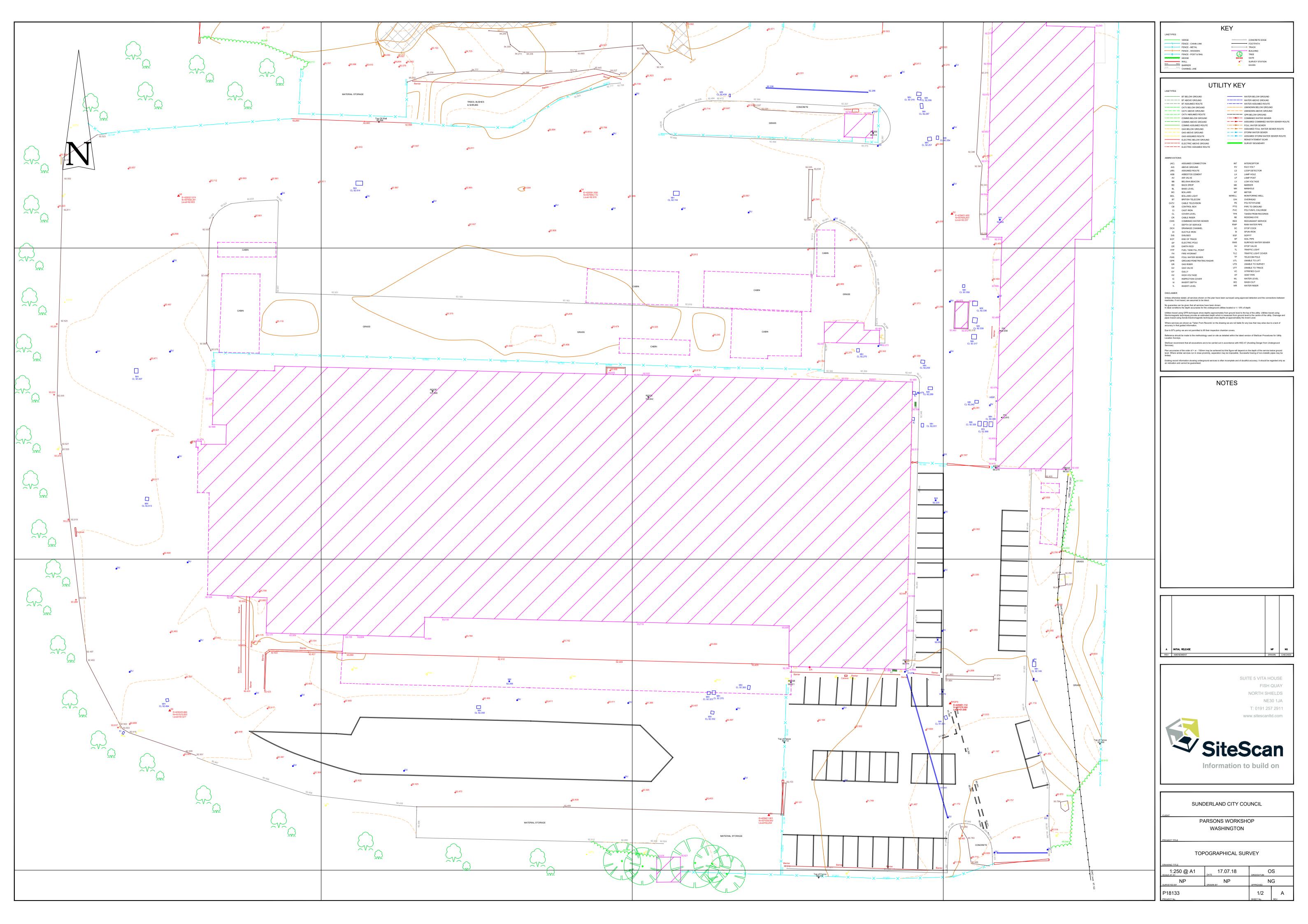
City Council

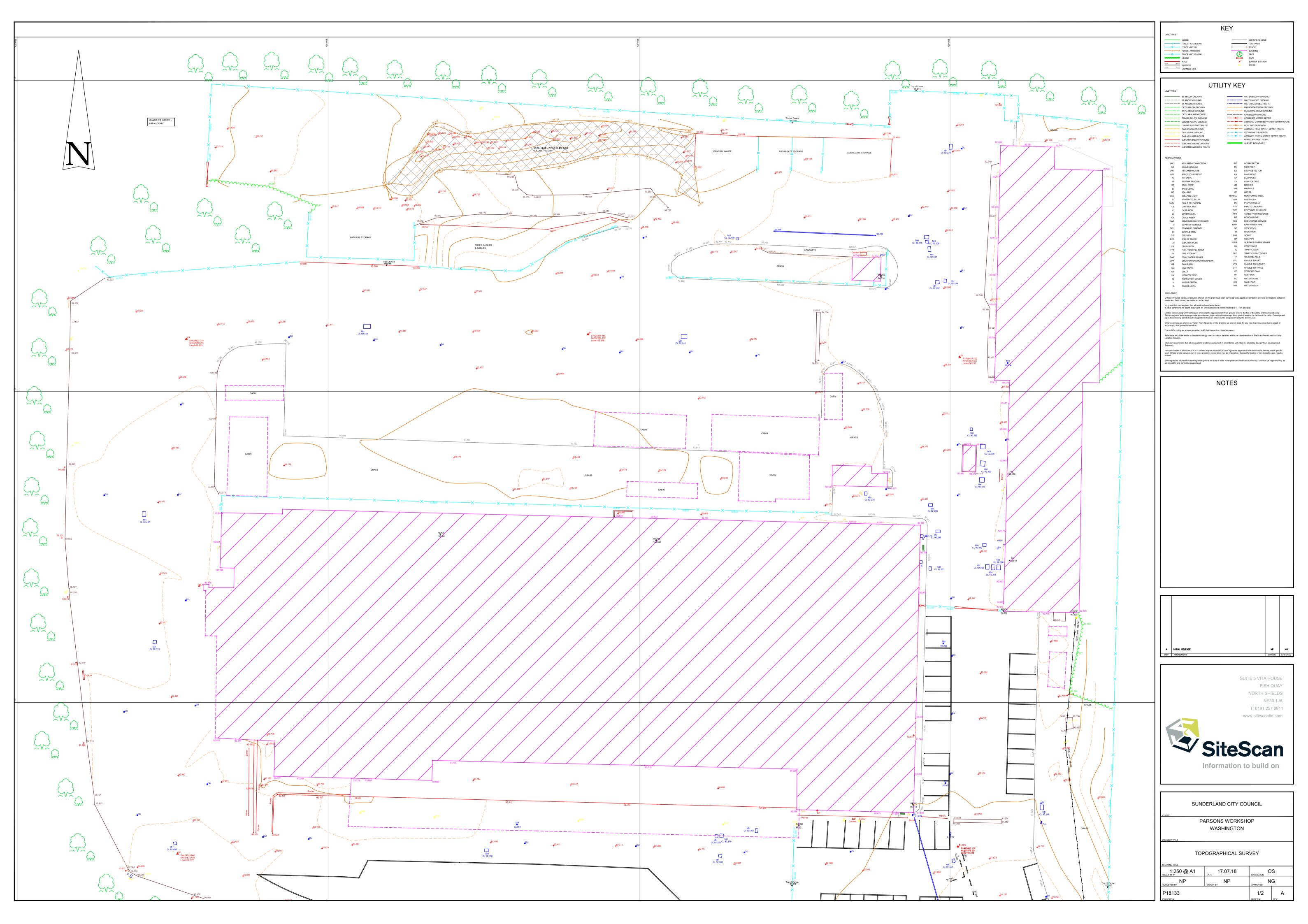
Drawing Title Site Preparation

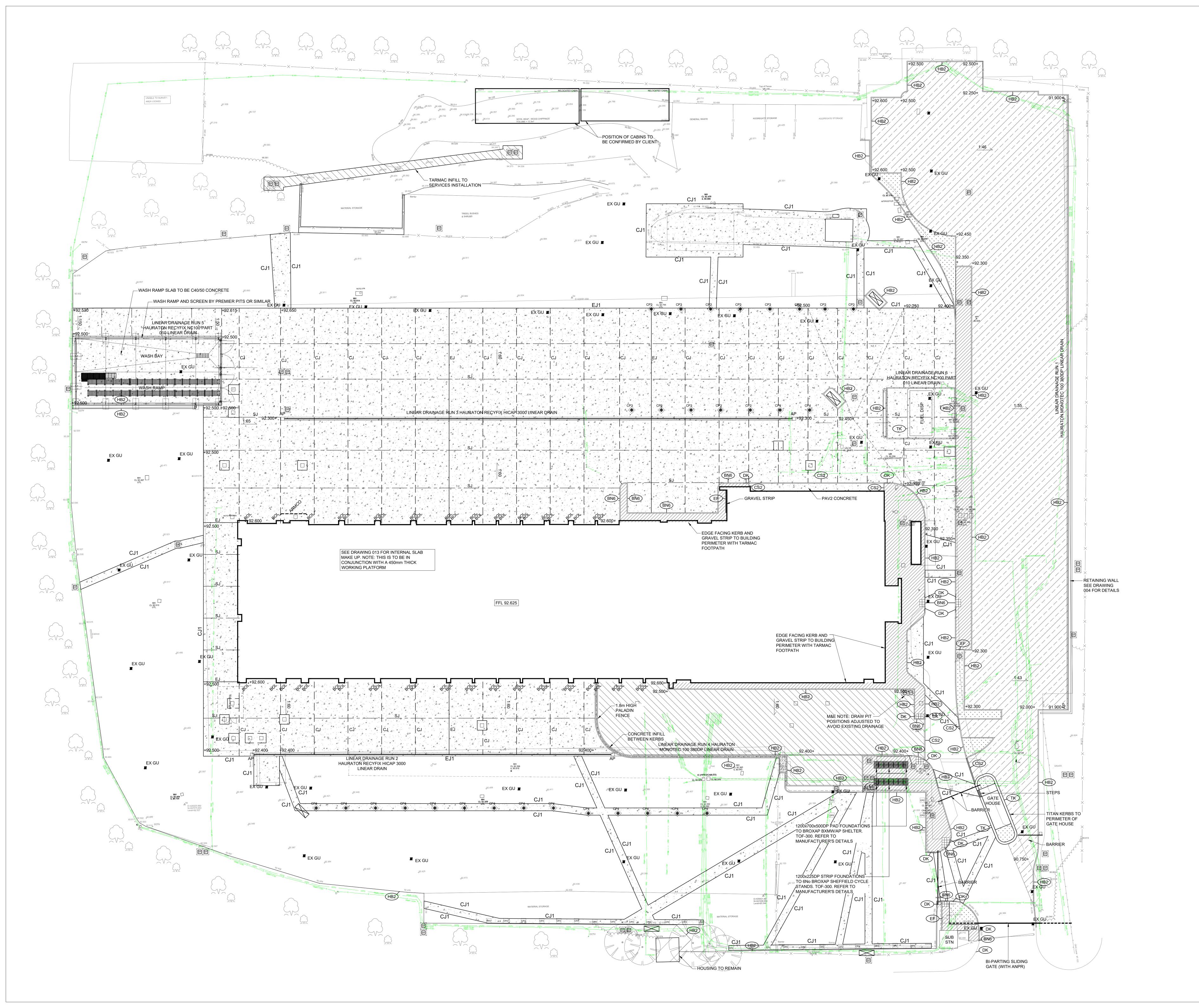
Drawing Status











Health and Safety Notes:

The following key residual health and safety risks have not been eliminated by design and are identified below:

- Refer to Design Risk Assessment: 2021002-DRA

Safe methods and systems of work remain the responsibility of This drawing shall be read in conjunction with the following

specification: 2021002/SP/002 Site Preparation and Earthworks

This drawing shall be read in conjunction with the following specification: 2021002/SP/004 External Concrete Slabs **LEGEND**

- PROPRIETARY SYSTEM TO BE DESIGNED BY SUPPLIER ON 300mm MIN VOIDED SUBBASE TO PROVIDE 30% VOID RATIO ON IMPERMEABLE MEMBRANE.

TARMAC
-30mm SMA SURFACE COURSE -70mm DBM BINDER -225mm TYPE 1 SUB-BASE

-20mm AC6 SURF 100/150 -50mm DENSE BINDER 100/150 -150mm TYPE 1 SUBBASE

CONCRETE - NEW BUILD -200mm THK PAV2 CONRETE (BRUSHED FINISH) WITH A252 MESH REINFORCEMENT -1200g MEMBRANE

-300mm TYPE 1 SUBBASE —— — SAW CUT EXPANSION JOINT

— — CONSTRUCTION JOINT +92.300 PROPOSED LEVEL

HALF BATTERED KERB 125 x 255 BULLNOSE KERB 125 x150 6mm UPSTAND

SQUARE CHANNEL BLOCK 150 x 125

FLAT TOP EDGING 50 x 150

DROP KERB 1:12 GRADIENT CHARGING POINT KIOSK

CHARGING PYLONS ON CONCRETE

CP3 & CP4 CHARGING POINTS ON GALVANISED POSTS FIXED TO CONCRETE SLAB DENOTES DRAW PIT. DIMENSIONS TBC BY M&E DESIGNER. REFER TO

DRAWING 006 FOR DETAILS

NOTE: SEE DRAWINGS 005 & 006 FOR DETAILS

USING PRE-FORMED RADIUS KERBS. OTHERWISE STRAIGHTS OF NOT LESS THAT 300mm LONG SHOULD BE USED WITH MITRE CUTS.

NOTE: KERB RADII LESS THAN 12m SHALL BE FORMED

ALL KERBS SHALL BE BUTT JOINTED.

KERBS SHALL BE LAID TO THE DESIGN LEVEL +/- 6mm. FULL LENGTHS OF KERB PIECES SHALL BE USED WHERE POSSIBLE. IF PIECING UP IS REQUIRED UNITS SHALL NOT BE OUT TO LESS THAN HALF THEIR LENGTH.

TOLERANCES SUB-BASE TO RECEIVE BASE ROAD-BASE + 0/-30mm.

BASE (ROADBASE) TO RECEIVE BINDER COURSE +/- 15mm.

BINDER COURSE TO RECEIVE SURFACE COURSE +/- 6mm. BINDER COURSE TO RECEIVE SURFACE COURSE ON AREAS OTHER THAN ROADS E.G. CAR PARKS, +/- 10mm.

SURFACE COURSE +/- 6mm.

THE SUM OF THE DEVIATIONS IN THE LEVELS OF DIFFERENT PAVEMENTS LAYERS SHALL NOT RESULT IN A REDUCTION OF THE REQUIRED DESIGN THICKNESS BY MORE THAN 8.5% OR IN THE OVERALL SURFACE COURSE THICKNESS BY MORE THEN 5mm.

E Issued for Construction D Issued for Construction C Updated to suit revised site layout B Fuel tank relocated, sliding gate introduced, MG MG MG 10/09/20 gatehouse repositioned, sub-station

A Fuel bund updated. Car park changed to BG MG MG 18/08/20 permeable tarmac. Kerbs updated. fencing, bollards, armco etc added. concrete yard

BG MG MG 31/03/21

BG MG MG 09/03/21

BG MG MG 23/02/21

By Chk App Date



F: 0191 4603028 E: info@portlandconsulting.co.uk Client ESH

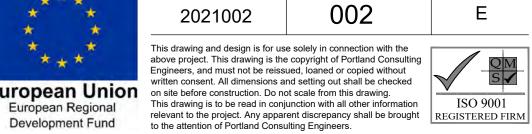
CONSTRUCTION

Parsons Depot Washington

Drawing Title External Works Layout

MG





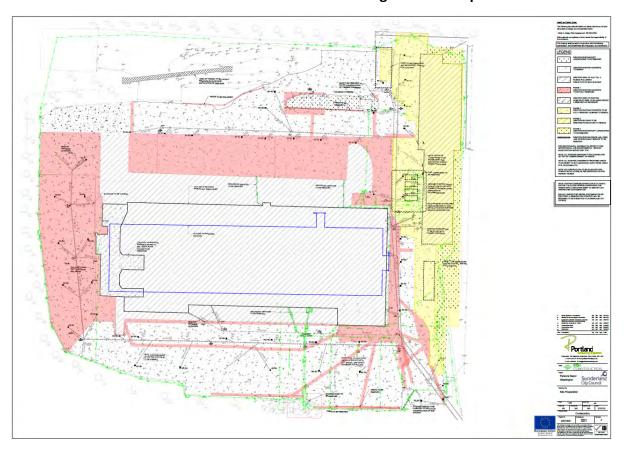


APPENDIX 2

SITE FORMATION LEVEL INSPECTION AND PHOTOGRAPHIC RECORD

3319 – Parsons Depot Earthworks Inspection Records

Site Clearance - Area of works is as indicated on Drawing 001 Site Preparation



Existing Site Vegetation to be stripped

See attached Topsoil Strip Checklist – Ref No: TSC – 001

Photo dated 09/08/2021 of area Below:



Excavation to Formation Area of works is as indicated on Drawing 001 Site Preparation See attached Earthworks Excavation Checklists – Ref No: BEC - 001

No Contaminated Hot Spots Identified During these Works.

Below Photos Dated 16/08/2021:











Below Photos Dated 17/08/2021:











Below Photos Dated 18/08/2021:



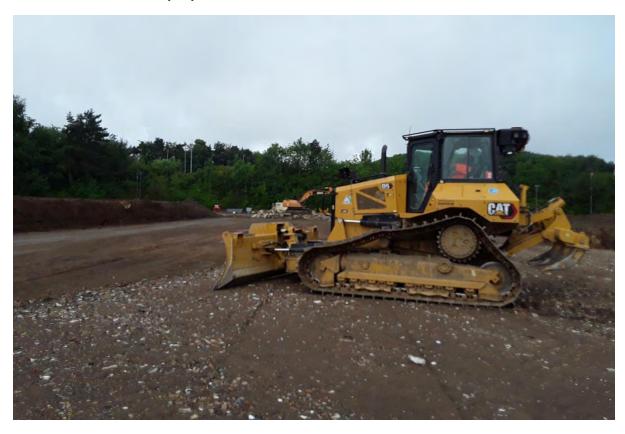








Below Photos Dated 20/08/2021:







Below Photos Dated 23/08/2021:







Below Photos Dated 26/08/2021:









Below Photos Dated 31/08/2021:

