



Abbey School, Neath

Jubb

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PROJECT INFORMATION

Project Information

Client BAM Construct UK

Project Details

Project Name Abbey School

Location Neath

Jubb Project Number 19264

Title Supplementary Ground Conditions Assessment Report

Report Details

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1	20/11/2019	First Issue
2	31/03/2020	Second Issue – Updated following additional ground investigation
3	05/08/2020	Third Issue – Update following completion of grouting works

EXECUTIVE SUMMARY

Site Information	
Client	BAM Construct UK
Project	Abbey School, Neath
OS Co-ordinates	SS 73290 97902
Site Size	Approximately 3.3 Ha
Proposals	It is proposed to develop the land into a Primary School, with associated school buildings, soft play areas (grass covered), tarmac (MUGA) area, rugby pitch, car parking and associated soft landscaped areas.
Site Description	The site is approximately 3.3 Ha in area, and irregular in shape due to the presence of Neath Abbey Infants School to the east of the site. The site slopes moderately downhill to the east. The eastern half of the site forms two separate terraces occupied by abandoned level playing fields. To the western half of the site, the site forms approximately three different terrace levels, which were previously the site of multiple school buildings.
Current and Historic Site Uses	Historically the site was occupied by open fields in 1876, with a well present to the south-western corner of the site. The site was largely unaltered until 1955, when Rhyd Hir Secondary School was constructed. In 1976, the school was renamed 'Dwr y Felin Comprehensive School' and a covered reservoir was observed to be present immediately north of the site. By 1989, additional school buildings were constructed on the western half of the site. Between 2010 and 2013 the remaining school buildings were demolished, leaving the concrete building foundations and floor slabs <i>in-situ</i>.
Ground Conditions	
Geology	The site to be underlain by the Swansea member, which form part of the Upper Pennant Measures (Seatearth Sandstone). The Grovesend Formation is present to the north and northeast of the site, comprising argillaceous mudstone and siltstone. The basal contact of the unit is with the Swansea Four-Feel Coal (equivalent of the Llasntwit No.3 Seam). Bedding is expected to be dipping by 18 to 25° to the northeast in areas east of the Dyffryn Fault. The bedrock is shown to be overlain by surficial Glacial Till deposits comprising a mixture of clays, sand, gravel and boulders.
Hydrogeology and Hydrology	▪ The Environment Agency classifies the bedrock as a Secondary 'A' Aquifer. ▪ Superficial deposits have been classed as unproductive. ▪ The site is not within or near a groundwater Source Protection Zone (SPZ). ▪ The River Clydach runs in a southerly direction approximately 309 m east of the site.

Ground Conditions Encountered	▪ The western half of the site is underlain by made ground up to 1.6 m comprising orange, grey and black sandy GRAVEL, slightly sandy gravelly CLAY, slightly sandy clayey SILT and COBBLES and BOULDERS with clasts of concrete, brick and sandstone. Car parking (asphalt) surfaces occupy the central southern portion of the site. ▪ Topsoil is present over the eastern half of the site comprising dark brown slightly gravelly sandy SILT with roots and rootlets up to 0.3 m thickness. ▪ Topsoil and made ground are underlain by Glacial Till Deposits comprising firm to stiff grey mottled orange brown and bluish grey gravelly CLAY and medium dense to dense very sandy very clayey GRAVEL. ▪ Light grey, grey and brown SANDSTONE with interbeds of dark grey and black coal.
Radon	▪ The Envirocheck report indicates no radon protection measures are required for new developments.
Geo-environmental Assessment	
Contamination Assessment	Soil samples were tested against the general assessment criteria for "Residential without plant uptake" using C4SL and S4UL. Some limited exceedances of Arsenic, Lead, PAH species were encountered across the site within the shallow made ground. A single exceedance of Petroleum Hydrocarbons EC>44 was encountered in TP117 within the made ground. Asbestos (chrysotile) was encountered in five samples within the made ground, at low concentrations. Gas risk at the site has been categorised as Characteristic Situation of CS1 (Very Low Risk) requiring no special ground gas protection. Principal contamination risks associated with contact between contamination in shallow made ground and end user (pupils and teachers).
Contamination Risk Classification	Low to moderate risk.
Outline Mitigation Strategy	Capping of the site is likely to be the most effective mitigation strategy, given that contamination is at low levels, sporadic and widespread. Capping in soft landscaped areas will comprise of 400-600mm of clean imported topsoil with a geotextile separating layer at the base, to be installed in all green space/soft landscaped areas. Where buildings, hard landscaping and artificial pitches are present, these will provide adequate capping protection.
Geotechnical Assessment	
Foundations and Floor Slabs	▪ Foundations will generally need to be excavated to between 1.5 m and 2.0 m depth under the proposed single storey building to the west of the site to achieve an allowable bearing capacity of 125 kPa. To the east of the site, where the proposed two-storey building is proposed, up to 3.8 m excavation has been indicated.

	At the location of the proposed two-storey school building to the east of the site (current site of car parking area), it is likely a ground bearing floor slab can be used. However, depending on the cut/fill activities of the upper single storey school building west of the two-storey building, a suspended floor slab is recommended.
Excavations	- Any excavations below slabs and other areas in superficial material should be readily achievable using standard mechanical plant with toothed buckets, which have been generally proven to an excavation depth of 2.0 m during the recent site investigation, locally up to 4.0 m depth immediately east of the proposed school building. A hydraulic-breaker may be required where excavations extend through the made ground and residual soils into the underlying bedrock - Swansea Member - Pennant Sandstone and Grovesend Formation. - Any excavations primarily within the cohesive glacial till soil strata should be temporarily stable with side batters at an angle of 1:2 (26°). Where such non-cohesive material is encountered a short-term batter slope angle of 1:3 (18°) should be assumed.
Earthworks	The majority of natural glacial till materials can be classified as either a class 2A and 2B (Wet and Dry cohesive fill materials) or a class 2C (Stoney cohesive material). The glacial till deposits also generally comply with class 7A (Selected cohesive material).
Buried Concrete Classification	Any concrete placed within the made ground should be designed with a Design Sulphate (DS) Class of DS-1 and an Aggressivity Chemical Environment for Concrete (ACEC) Class of AC-2. For concrete placed within the glacial till deposits, concrete should be designed with a DS class of DS-1 and an ACEC class of AC-1.
Pavement Design	Between ground surface level and 0.5 m depth below ground surface level, CBR results generally ranged between 1.1 to 49.4%. On the assumption that the initial 0.3 m thickness of overburden will be removed and reworking prior to placement of pavement, a design CBR value of 3% can be assumed.
Groundwater	Shallow groundwater as encountered within the made ground between 0.05 m depth and 1.45 m depth. A second groundwater level was encountered within the bedrock ranging between 12.08 and 24.76 m depth.
Mine Workings	- Open Hole drilling works identified no mine workings present within the Swansea Four Feet seam. However, BH103 and BH104 encountered voids between 17.1 m and 24.5 m depth within a lower coal seam up to 1 m in height to the north of the site with no voids encountered towards the south. - Additional drilling works carried out over the proposed building footprint confirm no mine workings or voids present to a target investigation depth of 15m. - The site has been classed as 'low risk' regarding mine works, which has been confirmed by additional drill and grouting works over the footprint of the proposed building.
Geotechnical Risk Category	Geotechnical Category 2

1 Introduction

1.1 Commission

BAM Construct UK are proposing to redevelop the recently demolished Dŵr y Felin Comprehensive School site off The Drive, in Neath, South Wales, with the construction of a two-storey primary school development, built on two terraces. To assist with the development of the site proposals, Jubb Consulting Engineers (Jubb) have been appointed to undertake a supplementary geotechnical and geo-environmental assessment of the ground conditions, incorporating previous ground investigation information from the site.

This report constitutes a supplementary Ground Conditions Assessment (GCA) for the proposed development and provides advice for the geotechnical and geo-environmental design of the development and associated ground contamination or geotechnical hazards. In February 2020, Jubb were commissioned to carry out additional investigation works to further define and delineate contamination hotspot areas identified in Phase 2 investigations works, to determine the exact location and nature of the mine entry/well location along the western site boundary) and to verify the presence/absence of voids/mine working under the proposed building footprint. These additional works have been incorporated within this report, with this third revision of the GCA report to reflect the findings of these additional works.

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1.2 Objectives

The objectives of this assessment are:

- to assess the geo-environmental ground conditions at the site with due regard to any previous investigation, remediation and validation works undertaken as part of the site enabling works. If necessary, to provide outline recommendations for risk mitigation based on the findings;
- to analyse the intrusive ground investigation results to determine ground conditions, obtain representative values for geotechnical analysis, and identify any geotechnical issues which may affect the proposed development (including but not limited to mine workings);
- to analyse the slope stability for existing banks and proposed retaining structures to recommend maximum bank gradients and/or remedial works of existing banks; and
- to make an evaluation of any potential environmental or geotechnical hazards, risks and liabilities to the planned development of the site on the basis of the foregoing studies, and to provide engineering and environmental recommendations for the site, in view of the potential development of the site.

1.3 Scope, Sources & Limitations

A Phase 1 Geo-environmental desk study report and Phase 2 Geo-environmental site investigation report were carried out in 2014 by Integral Géotechnique (Wales) Limited, which has been provided to Jubb and been relied upon in the production of this report, as detailed in section 3.0. The report provided recommendations for further investigation works to capture the following key areas:

- Further investigation required in the western half of the site to determine shallow ground conditions and contamination potential of the made ground underlying the existing floor slabs;
- A detailed inspection and assessment of the existing demolition materials should be carried out, including further tests for asbestos materials; and
- Rotary boreholes should be drilled in the eastern half of the site to investigate deeper ground conditions to check for the presence of any shallow coal seam and associated workings.

A Ground Investigation was also commissioned to support and supplement the initial assessment of the site and to address the above recommendations for additional site works, see section 5.0 for more details.

Following the completion of the Phase 2 investigation by Jubb, recommendations for additional works were made based on the findings of the GCA report and required additional works made by the Coal Authority. In February 2020, Jubb were commissioned to carry out additional investigation works to carry out the following supplementary works:

- Further define and delineate contamination hotspot areas identified in Phase 2 investigations works (works to be documented within our remediation strategy report);
- Determine the exact location and nature of the mine entry/well location along the western site boundary);
- Verify the presence/absence of voids/mine working under the proposed building footprint.

This report has been carried out in accordance with the following UK legislation and regulatory guidance for site investigations:

- BS EN 1997-1:2004 +A1:2013 Eurocode 7 Geotechnical design – Part 1 General rules;
- BS EN 1997-2 (2007) Eurocode 7 Geotechnical design – Part 2 Ground Investigation and testing;
- NA+A1:2014 to BS EN 1997-1:2004 +A1:2013 UK National Annex to Eurocode 7: Geotechnical design – Part 1: General rules,
- NA to BS EN 1997-2:2007 UK National Annex to Eurocode 7: Geotechnical design – Part 2: Ground investigation and testing;
- BS 5930 (2015) Code of Practice for site investigations;
- BS 8004 (2015) Code of Practice for Foundations;
- BS 10175 (2011) + A2: (2017) Investigation of Potentially Contaminated Sites – Code of Practice;
- CLR 11 (2004) Contaminated Land Research Report, Defra/EA - Model Procedures for the Management of land contamination;
- BS EN 14688 – 1 (2002) + A1 (2013) Geotechnical investigation and testing. Identification and classification of soil. Identification and description.
- BS EN 14688 – 2 (2004) + A1 (2013) Geotechnical investigation and testing. Identification and classification of soil. Principles for a classification.
- BS EN 14689 – 1 (2003) Geotechnical investigation and testing. Identification and classification of rock. Identification and description.

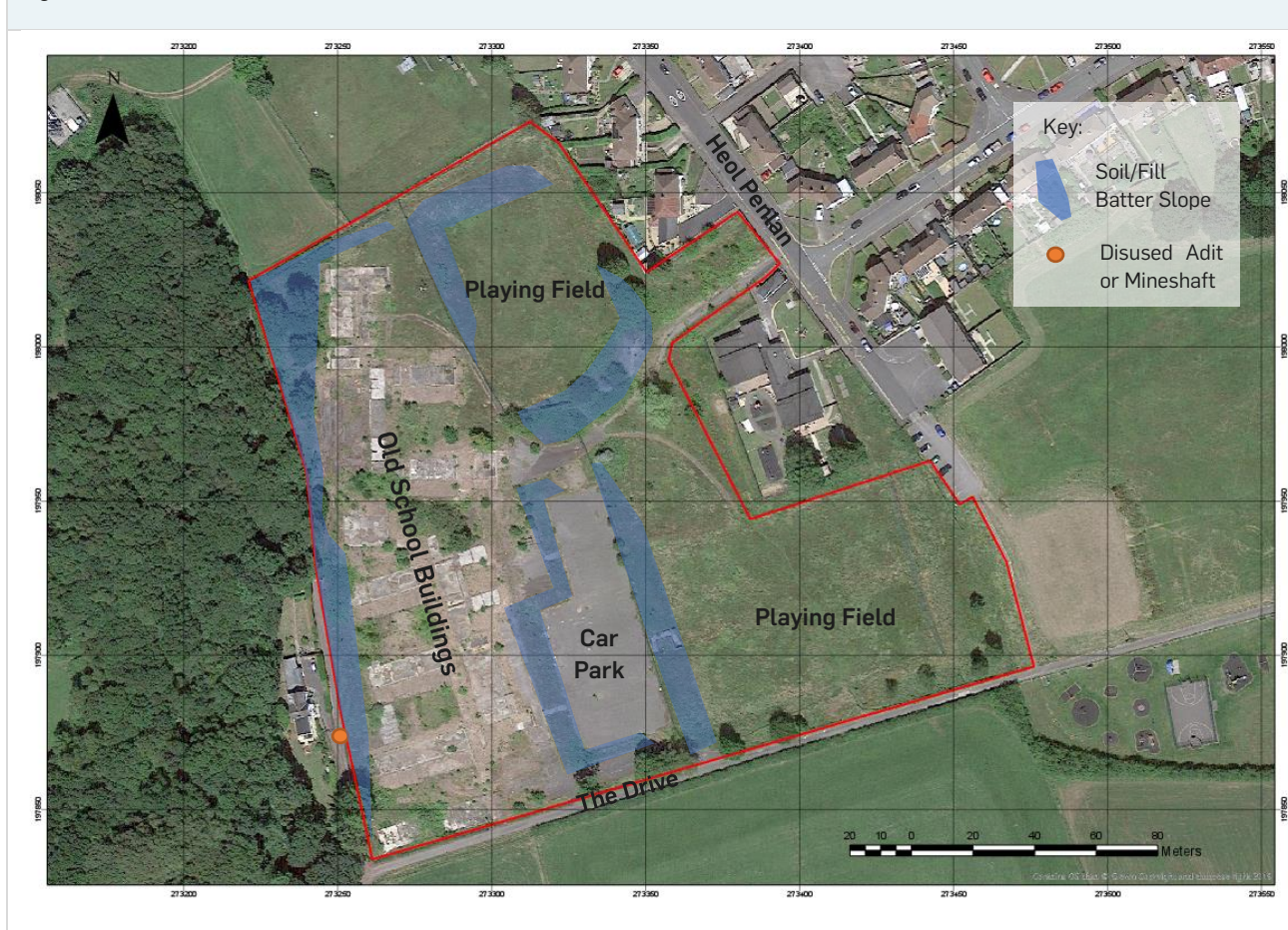
It should be noted that any ground investigation provides only a small sampling of any site and that ground conditions may differ both laterally (across the site) and vertically (with depth) between sample points. Such differing conditions may thus remain undetected by fieldwork. Certain areas may not have been accessible to intrusive survey due to vegetation, live services or other obstructions.

2 Site Setting

2.1 Site Location

The site is located on a plot of land to the north of The Drive and east of Heol Penlan, in Neath Abbey, 1km northwest of Neath in South Wales. The site is accessed from The Drive which runs along the southern site boundary and Heol Penlan, which partially runs along the eastern site boundary. The outline of the site is shown in Figure 1.

Figure 1: Site Location



The Ordnance Survey (Landranger) grid reference at the centre of the site is SS 73290 97902.

A site location plan and aerial photograph are reproduced in **Appendix A**.

2.2 Site Description

The site is approximately 3.3 Ha in area, and irregular in shape due to the presence of Neath Abbey Infants School to the east of the site. The eastern half of the site forms two separate terraces occupied by abandoned level playing fields. To the western half of the site, the site forms approximately three different terrace levels, which were previously the site of multiple school buildings. The site slopes moderately downhill to the east by 5°. At the time of investigation, these buildings had been demolished, with only the foundations and floor slabs remaining *in-situ*. Demolition material was observed to be crushed and distributed around the slab areas infilling topographic lows and was also used to form graded slopes. Towards the centre of the site, running north-south is a 4 m high soil/fill batter present between the playing field and the car park and a 3.5 m high soil/fill batter present between the school and the car park. Additional soil cut/embankment batters are present to the northwest of the site at the northern playing field up to 3.5 to 4 m in height.

The site is bound to the south by The Drive, to the east by Heol Penlan, Neath Abbey Infant School and residential housing to the north-eastern corner of the site, to the north by farmland and a covered reservoir and to the west by forestry and a single residential building. Running along the western site boundary is a 3-4 m high grass cutting, forming slope angles up to 38°. Car parking (asphalt surfaces occupy the centre of the site. The site is completely enclosed with 2 m high palisade security fencing.

At the time of the initial investigation, an ecological survey was being carried out in parallel, with reptile fencing installed around the perimeter of the site. Initial mobilisation of sub-contractors was delayed, allowing for the site ecologist to make necessary preparations for machinery to access the site and disturb vegetation.

2.3 Site Proposals

It is proposed to develop the site into a Primary School including childcare/nursery facilities, with associated single and double school buildings, soft play areas (grass covered), tarmac (MUGA) area, rugby pitch, car parking (taxi drop-off, staff parking, parent drop-off and coach drop-off), cycle paths and associated soft landscaped areas.

A site proposal plan is included in **Appendix B**.

3 Previous Reports

The following third-party reports have been provided to Jubb to aid in the scoping of the ground investigation and the composition of this report.

- Integral Géotechnique (Wales) Limited, October 2014. Dŵr y Felin School, Neath, Site Investigation Report, Document Ref: 11437/CF/14/SI/Rev A.

3.1.1 Desk Study and Ground Investigation Report, 2014

Integral Géotechnique (Wales) Limited produced a combined Phase 1 Desk Study and Phase 2 Ground Investigation Report in October 2014 for Neath Port Talbot County Borough Council. At the time of investigation, it is understood the proposed development comprised two to three storey residential housing with associated landscaped areas, car parking and access road on behalf of Neath Port Talbot County Borough Council. A geotechnical and geo-environmental investigation was carried out as part of these works comprising 9 no. windowless sample holes (WS1 to WS9), which were extended to between 0.7 and 3.0 m bgl, with three falling head permeability tests completed in WS3, WS7 and WS6.

Topsoil was encountered from ground level in WS1, WS3, WS6 and WS7, which generally comprised a brown slightly gravelly SAND, which was generally between 0.2 to 0.4 m thickness. Made Ground was encountered from ground level in all remaining holes, present to a maximum depth of 0.6 m and comprised orange brown and black slightly clayey gravelly SAND and clayey/silty sandy GRAVEL with clinker, ash, concrete. The topsoil and made ground were underlain by natural Glacial Till Deposits comprising a mixture of dense to very dense, orange brown and brown clayey/silty gravelly SAND to 1.0 to 1.5 m depth and stiff to very stiff brown sandy gravelly CLAY up to 1.0 to 2.8 m depth. Bedrock was not encountered during the investigation. However, window sample logs indicate holes were terminated due to refusal on hard strata.

During the investigation, groundwater was encountered in four of the holes; WS3 at 2.7 m depth, WS4 at 0.7 m depth, WS6 at 2.0m depth and WS7 at 1.0m depth.

Single falling head permeability testing carried out within windowless sample holes indicated calculated infiltration rates of 3.86×10^{-6} m/s within WS3, 4.67×10^{-6} m/s within WS6 and 1.16×10^{-5} m/s within WS7.

A summary of the desk study information is provided in Section 4.

A summary of the environmental and geotechnical testing carried out as part of the Integral site works is provided in Table 1 below.

Table 1: T&P testing summary

Test	No. of Samples
Natural moisture content	3
Atterberg limits	3
pH and Aqueous Extract Sulphate as g/l SO ₄	3
Brownfield contamination suite (heavy metals, general inorganics, total phenols, Speciated PAHs, Total PAH)	6
Asbestos screening	6

Exceedances for Polyaromatic Hydrocarbons (PAH) were encountered within the made ground in WS2, WS4 and WS5 and Chromium exceedances in all samples, with arsenic, copper and lead exceedances in WS5. Asbestos, namely Chrysotile was also encountered within the made ground in WS5. The primary focus of this supplementary phase of ground investigation is to further investigate the potentially affected areas, in particular areas around and under existing slabs.

4 Summary of Desk Study Information

The following information offers a summary of the desk study information provided by the Integral combined Phase 1 and 2 report referenced in Section 3.

4.1 Published Geology

The 1:50,000 scale geological map (Swansea -Sheet 247) indicates the site to be underlain by the Swansea Member, which form part of the Upper Pennant Measures. These deposits typically comprise a green-grey, lithic arenite, known as Pennant Sandstone with thin mudstone/siltstone and seatearth interbeds and mainly thick coal layers.

The Grovesend Formation is present to the north and northeast of the site, comprising argillaceous mudstone and siltstone. The basal contact of the unit is with the Swansea Four-Feel Coal (equivalent of the Llasntwit No.3 Seam). Bedding is expected to be dipping by 18 to 25° to the west in areas east of the Dyffryn Fault.

The bedrock is shown to be overlain by surficial Glacial Till deposits comprising a mixture of clays, sand, gravel and boulders.

The Dyffryn Fault is shown approximately 200 m west of the site (trending north-south, with downthrow to the east) and the Cwm Felin fault is approximately 300 m to the east (trending north-south, with downthrow to the west)

4.2 Hydrogeology

The Environment Agency classifies the bedrock as a Secondary 'A' Aquifer. Aquifers are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

Superficial deposits have been classified as unproductive by the Environment Agency groundwater vulnerability map and database.

The site is not within or near a groundwater Source Protection Zone (SPZ).

4.3 Hydrology

A primary river (River Clydach) runs in a southerly direction approximately 309m east of the site. Three tertiary rivers and one secondary river are present within 250 m of the site boundary.

The nearest surface water feature is a surface drain located 173m west of the site.

One discharge consent is 82 m to the northwest of the site, which expired in 1994 comprising unspecified effluent.

No groundwater abstractions were detected within 500 m of the site.

4.4 Landfill Sites

No historic landfill sites are recorded within 500m.

Eight BGS recorded mineral sites are within 500m of the site boundary. The nearest is Graig site located approximately 55 m northwest of the site.

4.5 Mining Sites

The Coal Authority indicates there is potential risk of ground subsidence associated with past shallow mine workings underneath the site.

A Coal Mining Report was obtained from the Coal Authority, which indicated the following:

- The property is in the likely zone of influence from workings in 4 seams of coal at 80m to 230m depth, last worked in 1921;
- The site is in an area where the Coal Authority believes there is coal at or close to the surface. This coal may have been worked at some time in the past;
- The site is not in the likely zone of influence from present underground and open cast mining;
- The property is not in an area that is likely to be affected at the surface from any planned future workings. However, reserves of coal exist in the local area which could be worked at some time in the future;
- Within 20m of the boundary of the site there is 1 mine entry;
- No claims have been made to The Coal Authority relating to subsidence on or within 50m of the site, since 31st October 1994; and
- There is no record of mine gas emission requiring action by The Coal Authority within the site boundary.

The following coal seam are located within the vicinity of the site:

- Swansea Four Feet – outcrops on the site, trending northwest to south. The seam is likely to underlie the eastern half of the site;
- Swansea Five Feet – outcropping 200 m southwest of the site trending north to southeast, dipping by 18°. This seam is expected to be mined at depth below the site; and
- Graigola – shown to be outcropping on the site.

Along the southwestern site boundary, a mine entry has been indicated at approximately the same locations as a well which is marked on historical maps. A mine entry to the Swansea Five Feet seam is located approximately 200 m southwest of the site. The Coal Authority plans indicate a disused mine shaft/adit along the western site boundary.

4.6 Radon Risks

The Envirocheck report indicates no radon protection measures are required for new developments.

4.7 Site History

Historically the site was occupied by open fields in 1876, with a well present to the south-western corner of the site. At this time the site was surrounded by rough pasture and reeds and a residential house 80m south west of the site. The site was largely unaltered until 1955, when Rhyd Hir Secondary School was constructed. The school buildings occupied the western half of the site, with the eastern and north-eastern side of the site used as playing fields. An electrical substation was present to the northwest of the site.

In 1976, the school was renamed 'Dwr y Felin Comprehensive School' and a covered reservoir was observed to be present immediately north of the site.

By 1989, additional school buildings were constructed on the western half of the site.

Google earth imagery indicates the school was demolished between 2010 and 2013, leaving the concrete building foundations and floor slabs *in-situ*.

4.8 Preliminary Risk Assessment (Contamination)

The following section provides a Preliminary Risk Assessment (PRA) of contamination at the site, and develops an initial Conceptual Site Model (CSM) to establish whether there are any potentially unacceptable risks associated with proposed development at the site.

The CSM provides a method to characterise potential site risks, by outlining potential sources of contamination, identifying potential receptors that may be impacted, and determining potential pathways by which sources may affect receptors.

A preliminary CSM has been derived from an assessment of the sites' environmental setting, site history, and review of previous reports.

The Risk Assessment Methodology and Definitions are set out in **Appendix D** to this report.

4.8.1 Potential Sources of Contamination

The potential contaminants described below have been identified from a study of the site history. The principal contaminative sources are as follows:

- School buildings and terracing earthworks (made ground);
- Ground gas from underground mine workings;
- Contaminated groundwater;
- Electrical substation; and
- Possible storage Tanks/Boiler House.

4.8.2 Potential Receptors

The following potential receptors have been identified, based on the 'at the time' proposed residential development end-use:

- Ground workers and construction workers;
- Future site users;
- Nearby rivers (i.e. River Clydach);
- Groundwater (Secondary 'A' Aquifer); and
- Building materials.

4.8.3 Preliminary Conceptual Site Model (CSM)

The potential key contaminative substances, potential receptors and possible pathways as identified by the Integral report are summarised in the table below, assuming a worst-case scenario.

The preliminary CSM will be used to target any further site investigation and will be developed and refined, based on the results of the site investigation.

Table 2: Summary of Integral preliminary conceptual site model

Preliminary Conceptual Site Model						
Sources	Receptor	Pathway	Consequence	Probability	Risk	Comments
Made Ground of unknown origin and historical land use	Resident – human health	Dermal Contact with made ground/dust	Medium	Low	Moderate/Low Risk	Preliminary contamination testing indicated exceedances in PAH, Chromium, Arsenic, Copper and Lead within made ground. Fragments of Asbestos (Chrysotile) were also identified.
		Ingestion of soil and/or soil attached to home-grown produce	Medium	Low	Moderate/Low Risk	
		Ingestion of home-grown produce	Medium	Low	Moderate/Low Risk	
		Inhalation of dust	Medium	Unlikely	Low Risk	Fragments of Asbestos (Chrysotile) were also identified. Supplementary investigation required to determine extent.
		Inhalation of vapours – indoor/outdoor	Medium	Low	Moderate/Low Risk	
	Groundwater quality	Leaching from made ground	Medium	Low	Moderate/Low Risk	
	Surface water quality	Transportation within groundwater	Medium	Unlikely	Low Risk	
Possible Storage Tank/Boiler House	Resident – human health	Inhalation of Vapours – indoor/outdoor	Medium	Low	Moderate/Low Risk	
	Groundwater quality	Localised spillage	Medium	Low	Moderate/Low Risk	
	Surface water quality	Transportation within groundwater	Medium	Low	Moderate/Low Risk	
Made Ground of unknown origin and natural ground	Building Materials Durability	Direct Contact	Medium	Low	Moderate/Low Risk	Preliminary contamination testing indicated exceedances in PAH, Chromium, Arsenic, Copper and Lead within made ground. Fragments of Asbestos (Chrysotile) were also identified.
Ground Gas – organic, gas producing materials	Human health	Accumulation of gases in confined spaces, and/or migration off site, leading to asphyxiation, or risk of explosion.	Medium	Unlikely	Low Risk	Ground gas monitoring standpipes to be installed in supplementary investigation works to facilitate monitoring.

5 Ground Investigation Works

5.1 General

A ground investigation was undertaken by Terra Firma (South), which was planned and scoped by Jubb. Terra Firma were appointed directly by BAM Construction. The ground investigation comprised the following site activities;

- 5 no. open hole boreholes. 4 no. open hole boreholes were drilled to 30 m depth (BH101 to BH104) and 1 no. open hole borehole to 20 m depth (BH105);
- 12 no. window sample boreholes to a maximum depth of 4 m below ground level (WS101 to WS112);
- 22 no. trial pits excavated up to 2.7 m depth (TP101 to TP122); and
- 6 no. soakaway tests (SA101 to SA106).

The site works were carried out between 7th October and 29th October 2019. An attempt to start site works was made on 23rd September, however, an ecological survey was being undertaken at this time and a delayed start date was subsequently required to allow for necessary site preparations to be made.

Following the findings and recommendations made within our first edition of this Ground Conditions Report (19264-GCA-01, dated (20/11/2019), an additional investigation was proposed by Jubb comprising the following activities:

- 1 no. trial trench/pitting exercise at the location of the proposed mine entry/well location;
- 39 no. open hole boreholes to 15 m (BH201 to BH239) set in a grid arrangement across the proposed building footprint;
- 7 no. shallow trial pits (PTP201 to PTP207) across existing pavement areas to test a potential coal tar derived asphalt layer; and
- 36 no. shallow trial pits (TP201 to TP236) at known contamination hotspots across the site.

Additional contamination trial pitting investigation works and mine entry/well location works were carried out by Terra Firma (South) on 20th and 21st February 2020, which were planned and scoped by Jubb. Drilling works carried out across the building footprint were carried out by Apex Drilling Services Ltd between 27th February and 17th March 2020, which was planned and scoped by Jubb. The exploratory hole locations were decided by Jubb, based on the previous investigation exploratory hole locations and the outline of the development proposal, with holes being moved accordingly with regards to site constraints at the time of the siteworks and known target areas of interest.

The exploratory hole locations were checked for buried services prior to excavation and each location was scanned by Terra Firma (South) using a cable avoidance tool (CAT).

Representative soil sampling of each stratum was undertaken to allow geotechnical and chemical testing.

The factual ground investigation works are detailed in the following report:

- Terra Firma (South) - Factual Ground Investigation Report, Report No. 6385, dated March 2020.

An exploratory hole plan is provided in **Appendix C** along with observations made during the site inspection, presented in **Appendix D**.

5.1.1 Open Hole Boreholes

Open hole drilling was carried out between 9th October and 23rd October 2019 (BH101 to BH104), using a Comacchio 205 drilling rig completed by ADS Drilling Limited, who were sub-contracted to Terra Firma. Boreholes were extended to 30 m depth creating 115 mm diameter borehole. Due to restrictions imposed by the Coal Authority, water flush was used where boreholes were located within 50 m of existing buildings. On encountering voids within BH103 and BH104, an additional borehole (BH105) was drilled west of the contact of the Swansea Four Feet seam under the proposed building footprint, extending to a depth of 20 m.

Ground and Gas monitoring standpipes were installed in BH101 and BH103 to the base of the borehole and within BH104 to 3.0 m depth.

Supplementary open hole drilling works were carried out between 27th February and 17th March 2020 (BH201 to BH236), using a Klemm KR802-2 X5 drilling rig completed by Apex Drilling Services Ltd who were directly engaged by BAM. Boreholes were extended to 15 m depth bgl creating 115 mm diameter borehole. Boreholes were drilled using compressed air flush. On completion of the drilling works, boreholes were backfilled with a cement:PFA based low-strength grout (Pozament GM Grout). Details of the grouting works have been documented within Section 9.10 of this report.

5.1.2 Trial Pits and Soakaway Tests

Between 7th October to 10th October 2019 trial pits (TP101 to TP122) and soakaway pits (SA101 to SA106) were excavated using a JCB-3CX backhoe excavator and extended to depths of between 1.1 to 2.7 m depth below existing ground surface level. It should be noted that SA106 and TP109 were combined to reduce ground disturbance. Test pits TP115 and TP117 were terminated before target depth due to excess ingress of water, which was found to be perched within the made ground. After detailed examination, measurement and sampling, the excavations were backfilled with arisings and compacted in layers using the machine's bucket.

Dynamic Cone Penetrometer (DCP) testing was carried out adjacent to TP103, TP104, TP106, TP109, TP112-TP114, TP118 and TP120.

Between 20th and 21st February 2020 additional trial pitting (TP201 to TP236 and PTP201 to PTP207) and trial trench were excavated using a JCB-3CX backhoe excavator. The trial pits were extended to depths of between 0.1 to 0.7 m depth bgl to target depths of known contamination hotspots. The trial trench for investigating the location of the mine entry/well was excavated as an open sided trench to a depth of 2 m below the crest of the embankment along the western site boundary. On completion, all positions were backfilled with arisings and compacted in layers using the machine's bucket.

5.2 Window Samples

On 10th October 2019, twelve (12no.) window sample boreholes (WS101 to WS112) were drilled using a Dando Terrier rig supplied by Wessex Drilling Limited, who were sub-contracted to Terra Firma. Boreholes were extended to between 1.0 to 4.0 m depth. Standard Penetration Testing (SPT) was carried out 1.0 m intervals within each borehole. Bulk soil samples and environmental soil samples were taken within select soil horizons. On completion, 50 mm diameter gas and groundwater monitoring standpipes were installed within WS104, WS105, WS106, WS108, WS109 and WS110. All other boreholes were backfilled on completion.

5.3 Exploration Sampling Strategy

Exploratory hole locations were selected by Jubb and positioned to provide sufficient coverage of the site as follows:

Table 3: Sampling Strategy

Exploratory Hole	Notes/Rational
TP104 to TP109 and WS112	Further investigation across areas of proposed pavement. Dynamic Cone Penetrometer (DCP) testing to characterise <i>in-situ</i> CBR values.
WS101 to WS111 and TP114 to TP122	Further investigation of areas under proposed building footprint, investigating under and around existing building slabs. Determine shallow ground conditions and characterisation of made ground.
TP101 to TP103 and TP111 to TP113	Further investigation in areas of future playgrounds and courts.
TP201 to TP236	Further investigation at known contamination hotspot areas.
PTP201 to PTP207	Further investigation across existing pavement areas to confirm presence and extent of coal tar derived asphalt.
BH101 to BH105	Deep open hole boreholes required to confirm the presence/absence of coal mine workings along known coal seam location to the east of the site.
BH201 to BH239	Further investigation drilling works across the proposed building footprint to verify presence/absence of mine workings/voids. Boreholes positioned on a 12 m x 12 m grid.
SA101 to SA106	Investigate soakaway potential at selected infiltration trench locations.
Trial Trench	Trial trench to be excavated at the location of a known mine adit/well.

The sampling strategy was based on obtaining sufficient samples from across the site. Relevant samples were submitted for a general 'brownfield' suite of testing, determinants as detailed below.

Table 4: Contamination Suite

Suite	Determinants
Contamination Suite	As, Cd, Cr, Cu, Pb, Ni, Se, Zn, Hg, pH, Cr(VI), Asbestos screening, PAH's (PAH-16MS) and Speciated Hydrocarbons (C10-C40), including BTEX, MTBE, organic matter and TPH.

5.4 Geotechnical Testing

Geotechnical testing for the current phase of works was carried out by I2 Analytical Limited laboratory in accordance with *BS1377: Methods of test for soils for civil engineering purposes*, as listed in the table below.

Table 5: Geotechnical Testing

No. of Tests	Test	Test Method
Classification Tests		
20	Natural moisture content	BS1377: Part 2.
20	Liquid and plastic (Atterberg) limits – 4 point.	BS1377: Part 2.
10	Particle Size Distribution	BS1377: Part 2.
7	Sedimentation Analysis	BS1377: Part 2.
6	Standard Compaction – 2.5kg rammer method	BS1377: Part 4.
10	BRE SD1 – Concrete in aggressive ground	BRE Special Digest 1

5.5 Contamination Testing

The geo-environmental testing was carried out by Chemtest Limited, a UKAS and MCERTS accredited laboratory. Sub-samples were taken from the exploratory holes and placed in appropriate environmental containers before being sent by courier to the laboratory in cool boxes. The number of soil and leachate samples tested are summarised in Table 6. Additional hotspot contamination test carried out have been excluded from this report, but documented within our remediation strategy report.

Table 6: Soil Contamination Testing

Exploratory Hole	Depth (mbgl)	Analysis Undertaken
SA101	0.5	Metals suite, Speciated TPH & PAH
SA104	1.0	Metals suite, Speciated TPH & PAH, MTBE & BTEX
	1.5	Metals suite, Speciated TPH & PAH, Asbestos screening, MTBE & BTEX
TP101	0.3	Metals suite, Speciated TPH & PAH, MTBE & BTEX
TP104	0.3	Metals suite, Speciated TPH & PAH, MTBE & BTEX
TP107	0.5	Metals suite, Speciated TPH & PAH, MTBE & BTEX
TP108	0.1	Metals suite, Speciated TPH & PAH, MTBE & BTEX
TP111	0.5	Metals suite, Asbestos screen, Speciated TPH & PAH, MTBE & BTEX, Full WAC
	1.0	Metals suite, Speciated TPH & PAH, MTBE & BTEX,
TP113	0.3	Metals suite, Asbestos screen, Speciated TPH & PAH, MTBE & BTEX
TP114	0.3	Metals suite, Asbestos screen, Speciated TPH & PAH, MTBE & BTEX
TP115	0.5	Metals suite, Speciated TPH & PAH, MTBE & BTEX
TP116	0.5	Metals suite, Speciated TPH & PAH, MTBE & BTEX
TP117	0.5	Metals suite, Asbestos screen, Speciated TPH & PAH, MTBE & BTEX, Full WAC
TP118	0.2	Asbestos screening
TP119	0.25	Metals suite, Asbestos screening, Speciated TPH & PAH, MTBE & BTEX
TP120	0.4	Metals suite, Speciated TPH & PAH, MTBE & BTEX
TP121	0.3	Metals suite, Speciated TPH & PAH, MTBE & BTEX
	0.5	
TP122	0.1	Metals suite, Speciated TPH & PAH, MTBE & BTEX, Full WAC
WS101	0.5	Metals suite, Speciated TPH & PAH, MTBE & BTEX
WS102	0.6	Metals suite, Speciated TPH & PAH, MTBE & BTEX, Asbestos screening
	0.7	Metals suite, Speciated TPH & PAH, MTBE & BTEX
WS103	0.6	Metals suite, Speciated TPH & PAH, MTBE & BTEX
WS105	0.5	Metals suite, Speciated TPH & PAH, MTBE & BTEX
WS106	0.5	Metals suite, Speciated TPH & PAH, MTBE & BTEX
WS109	0.7	Metals suite, Speciated TPH & PAH, MTBE & BTEX, Asbestos screening
WS110	0.5	Metals suite, Speciated TPH & PAH, MTBE & BTEX
WS111	1.0	Metals suite, Speciated TPH & PAH, MTBE & BTEX

6 Ground Conditions

6.1 Ground Conditions Encountered

The ground conditions revealed during the current phase of ground investigation are summarised in the table below:

Table 7: Ground Conditions Summary

Description	Stratum	Encountered in	Typical depth to top of stratum (m bgl)	Typical depth to base of stratum (m bgl)	Average thickness (m)
Made Ground: Orange, grey and black sandy GRAVEL of subangular to subrounded finer to coarse brick, concrete, metal fragments, sandstone. /Asphalt over gravels/COBBLES and BOULDERS/ sandy very clayey GRAVEL. Localised asbestos. Topsoil: Soft dark brown slightly gravelly sandy SILT with roots and rootlets	Made Ground/Topsoil	Topsoil encountered in SA102, SA106, SA105, SA103, TP101 to TP107, TP110, TP112, WS112, WS110, WS107.	0.0	0.4	0.4
Firm to stiff grey mottled orange brown and bluish grey gravelly CLAY/slightly sandy gravelly CLAY/medium dense to dense very sandy very clayey GRAVEL. Contains occasional cobbles and boulders throughout. Locally recovered as COBBLES and BOULDERS of sandstone.	Glacial Till	All hole locations	0.4	2.1	1.6
Broken/weathered light grey, grey and brown Sandstone with interbeds of dark grey and black coal	Bedrock	BH101 to BH105, BH201 to BH239	2.1	11.4	9.3
Light grey, grey and brown Sandstone with interbeds of dark grey and black coal	Bedrock	BH101 to BH105, BH201 to BH239	11.4	+30	undefined

The ground conditions encountered during the previous ground investigation (Section 3.1.1) carried out by Integral Geotechnique in October 2014 have been summarised in Table 8.

Table 8: Summary of ground conditions from previous GI

Description	Stratum	Encountered in	Typical depth to top of stratum (m bgl)	Typical depth to base of stratum (m bgl)	Average thickness (m)
Brown silty gravelly SAND with roots	Topsoil	WS1, WS3, WS6, WS7	0.0	0.3	0.3
Orangish brown, black silty/clayey sandy GRAVEL and SAND, with ash, clinker and concrete fragments.	Made Ground	WS2, WS4, WS5, WS8 and WS9	0.0	0.45	0.45
Very soft grey and brown slightly sandy SILT/CLAY and gravelly silty SAND with occasional gravel of medium, sub-angular sandstone.	Reworked Natural	WS6	0.4	3.0+	2.6+
Stiff to very stiff/medium dense to dense sandy gravelly CLAY/silty gravelly SAND/sandy GRAVEL. Gravel is fine, medium and coarse sub-angular limestone and mudstone lithorelicts.	Glacial Till	WS1-WS5 WS7-WS9	0.5	1.7	1.1

During the investigation, the site had been demolished of above ground buildings. All building slabs and hard standing areas were in place, with building demolition material comprising crushed brick and concrete placed around the perimeters of each building slab to form gentle batters around site.

6.1.1 Topsoil/Made ground

Made ground was encountered within the majority of exploratory hole locations to the western half of the site, where the old Abbey School buildings were demolished. Fill material ranged between 0.2 to 0.7 m thickness to

the north of the site, increasing locally to up to 1.6 m (within SA104) towards the centre of the site. Towards the south of the site (old Abbey School footprint), the made ground ranges between 0.2 to 1.2 m thickness. At the time of investigation, concrete slabs and foundations were still present within the western half of the site, which were surrounded by crushed demolition material, mainly crushed brick and concrete. The made ground ranged between an orange brown and grey clayey very sandy GRAVEL, COBBLES and BOULDERS with much sand and gravel, slightly sandy gravelly CLAY and slightly sandy clayey SILT containing gravels of bricks, concrete, tiles and sandstone.

Topsoil was encountered over the eastern portion of the site, where grass covered sports fields were present between 0.1 to 0.3 m thickness, comprising dark brown very soft to firm slightly gravelly sandy SILT with variable clay content.

6.1.2 Glacial Till Deposits

Glacial Till Deposits were encountered within all borehole locations across the site, recovered as a firm to stiff grey mottled orange brown and bluish grey gravelly CLAY/slightly sandy gravelly CLAY, which generally graded into a medium dense to dense very sandy very clayey GRAVEL with cobbles and boulders throughout with depth. Locally these deposits were also recovered as COBBLES and BOULDERS of sandstone to an average depth of 2.1 m and encountered maximum investigation/refusal depth of 4 m within WS107.

6.1.3 Swansea Member – Upper Pennant Sandstone

All window samples and some of the test pit locations refused before scheduled depths on the Upper Pennant Sandstone. The contact between the overlying glacial till deposits and the sandstone bedrock was found to grade from a completed weathered rock, recovered as a sandy very clayey GRAVEL and very gravelly CLAY to an average depth of 11.4 m bgl. Below this depth the bedrock improves in strength and reduction in fracturing comprising light grey, grey and brown SANDSTONE. Due the destructive method of drilling, the strength of the sandstone has not been determined other than encountering window sample refusals with SPT N-values in excess of 50 blows. Two distinct coal seam layers were encountered between 6.5 and 8.5 m depth below ground level and 14 to 24 m depth below ground level. All boreholes during the initial phase of works were terminated at 30 m on completion and 15 m during the second phase of works.

6.2 Groundwater

During the Integral Geotechnique investigation, groundwater was encountered within WS3 at 2.7 m depth, within WS4 at 0.7 m depth, within WS6 at 2.0 m depth and within WS7 at 1.0m depth.

During the recent Terra Firma geotechnical investigation, perched groundwater was encountered within the following hole locations, generally within the made ground:

Table 9. Groundwater Site Observations

Hole Location	Groundwater Depth (m bgl)	Comments
TP105	1.6	Small seepage within residual soil
TP107	1.4	Medium seepage within residual soil
TP112	0.25	Small seepage within residual soil
TP115	0.5	Large seepage within residual soil
TP117	0.5	Large seepage within made ground
TP121	0.6	Small seepage within residual soil
SA101	1.45	Small seepage within residual soil
SA102	0.6	Small seepage within residual soil
SA104	1.5	Small seepage within made ground
SA105	2.5	Small seepage within residual soil

Based on the above information, shallow groundwater is expected across the site. Perched groundwater is expected within the made ground, particularly where demolition material (crushed bricks) has been used to infill adjacent to building floor slabs (which were *in-situ* during the investigation), resulting in lateral confinement of surface water.

Groundwater and gas monitoring wells were installed into window sample holes WS104, WS105, WS106, WS108, WS109, WS110 and boreholes BH101, BH103 and BH104.

The following four groundwater monitoring visits have been carried out (2 no. visits are still pending), with the results presented in Table 10.

Table 10. Groundwater Monitoring Results

Date and Time	Groundwater Level (mbgl)			
	25/10/2019 at 12:30	15/11/2019 at 09:30	TBC	TBC
WS104	1.1	1.0	TBC	TBC
WS105	0.5	0.25	TBC	TBC
WS106	0.4	0.38	TBC	TBC
WS108	0.35	0.3	TBC	TBC
WS109	0.15	0.05	TBC	TBC
WS110	Could not locate borehole		TBC	TBC
BH101	13.3	12.08	TBC	TBC
BH103	25.5	24.76	TBC	TBC
BH104	1.45	1.28	TBC	TBC

The results indicate the presence of a shallow groundwater level within the made ground between 0.05 m and 1.45 m depth. The shallow groundwater represents perched groundwater from surface water infiltration along the contact between the made ground and the underlying glacial till deposits. A second natural groundwater level was encountered within the bedrock, which ranged between 12.08 m depth bgl in BH01 (south of the site) – within the Pennant Sandstone to the south of the site and increasing to 24.76 m depth within the Grovesend Formation to the north of the site.

7 Material Properties

The following section presents a combined summary of laboratory test results carried out to date from both phases of site investigation.

7.1 Made Ground (including Reworked Natural Ground and Topsoil)

No laboratory testing was carried out by Integral Geotechnique within the made ground.

7.1.1 Classification Properties

Three samples from the cohesive fraction of the made ground were submitted for classification as part of the recent ground investigation. The results are summarised in Figure 2 and Table 11.

Figure 2: Made Ground Plasticity Chart

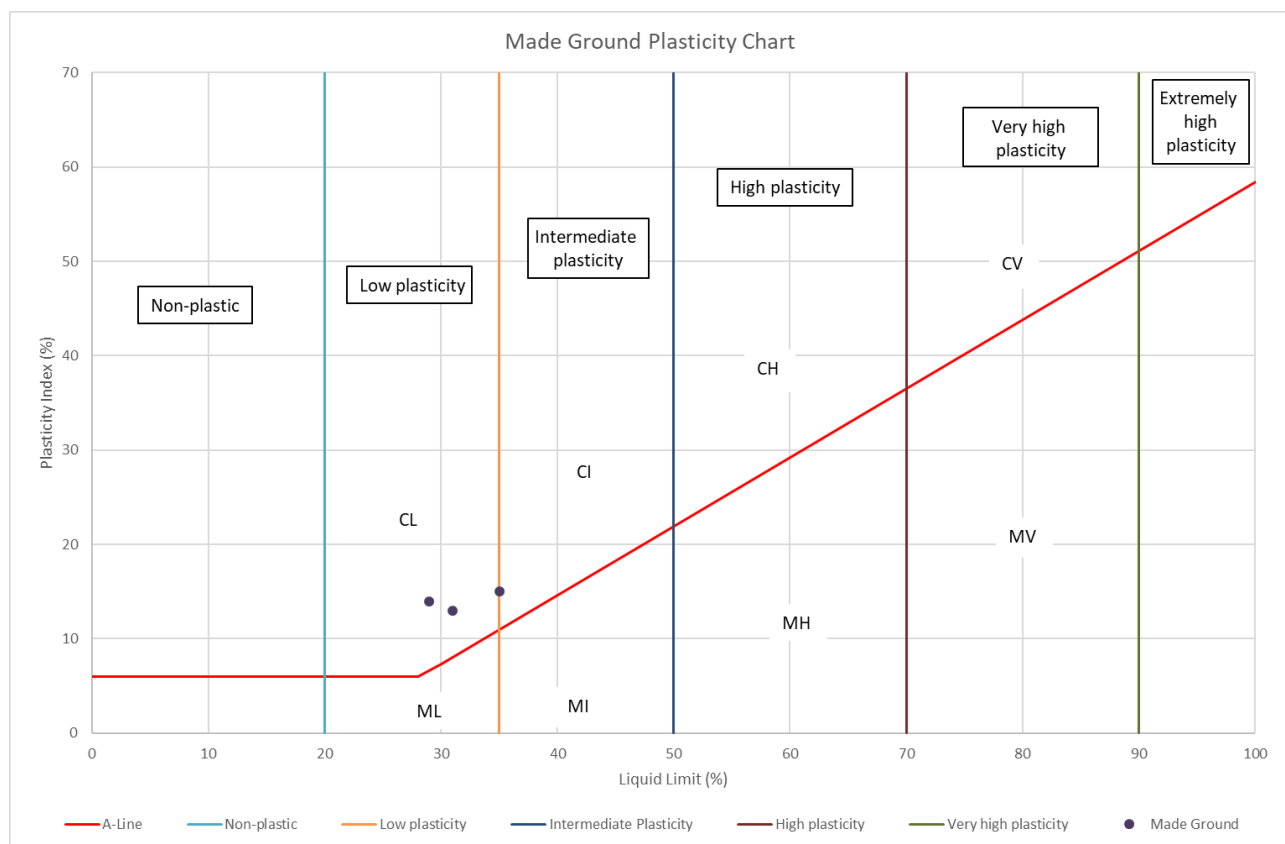


Table 11: Atterberg Limit Tests

Summary Geotechnical Data: Made Ground			
	Minimum	Maximum	Average
Natural Moisture Content	12	23	17
Liquid Limit	29	35	32
Plastic Limit	15	20	18
Plasticity Index	13	15	14

The natural moisture content of the made ground ranges between 12 and 23%. The A-line below shows the made ground to range between low to intermediate plasticity, with low volume change potential with changes in moisture content.

Table 12: Geotechnical Characteristics of Made Ground

Characteristic Property	Symbol	Units	Characteristic Values	Source
Unit Weight	γ	Kg/m ³	18	-
Angle of Shearing Resistance	ϕ	Degrees	25	1
Undrained shear strength	Cu	kPa	26	2

1. Gibson 1953 Experimental Determination of the True Cohesion and True Angle of Internal Friction in Clays, Proc. of the Third Int. Conf. on Soil Mechanics and Foundation Engineering
2. Skempton and Northey, The Sensitivity of Clays, Geotechnique, vol. 3, 1952.

7.2 Glacial Till Deposits

7.2.1 Classification Properties

Three samples from the Glacial Till Deposits were tested for classification purposes by Integral Geotechnique.

An additional nineteen samples were scheduled by Jubb with the results from both investigations summarised in Table 13 and Figure 3 below.

Figure 3: Glacial Till Plasticity Chart

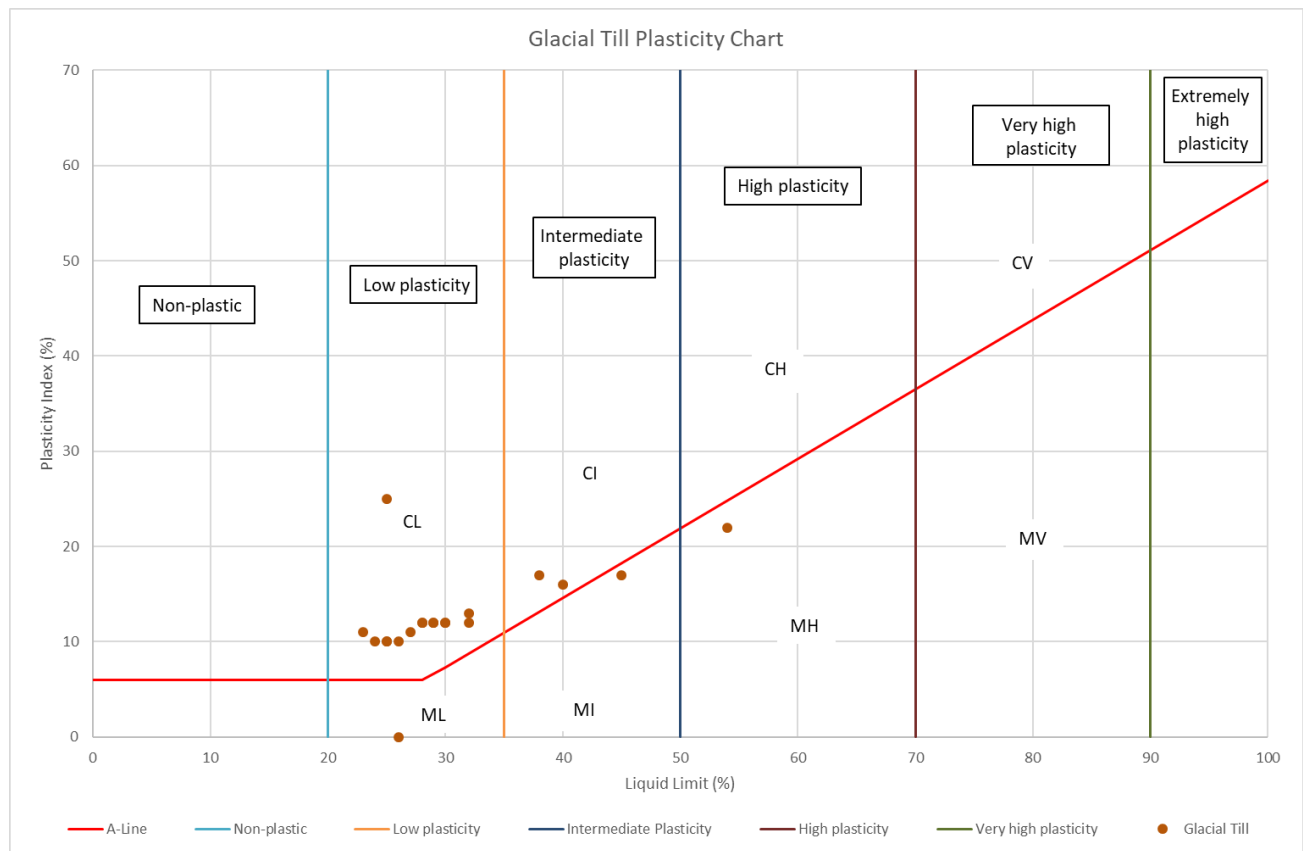


Table 13: Atterberg Limit Tests

Summary Geotechnical Data: Glacial Till Soils			
	Minimum	Maximum	Average
Natural Moisture Content	9.9	45	17
Liquid Limit	23	54	31
Plastic Limit	0	32	17
Plasticity Index	0	25	13

The natural moisture content of the residual soil ranges between 9.9 and 45%. The A-line below shows the glacial till deposits to typically be non-plastic and low to intermediate plasticity (single high plasticity soil encountered in TP107 at 1.0m depth), with low volume change potential with changes in moisture content.

A total of 10 no. Particle Size Distribution (PSD) tests were carried out on the Glacial Till Deposits. The material grading curves have been present in Figure 4.

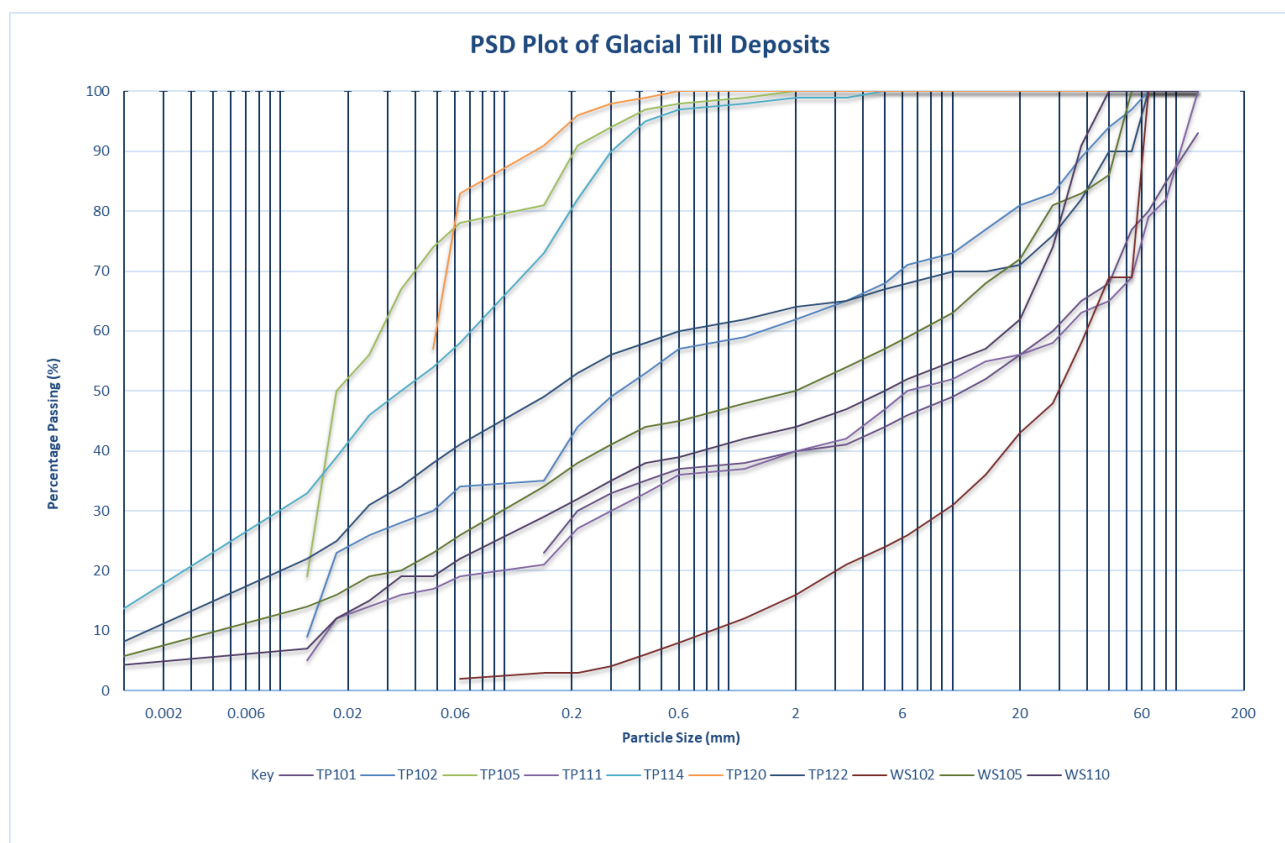


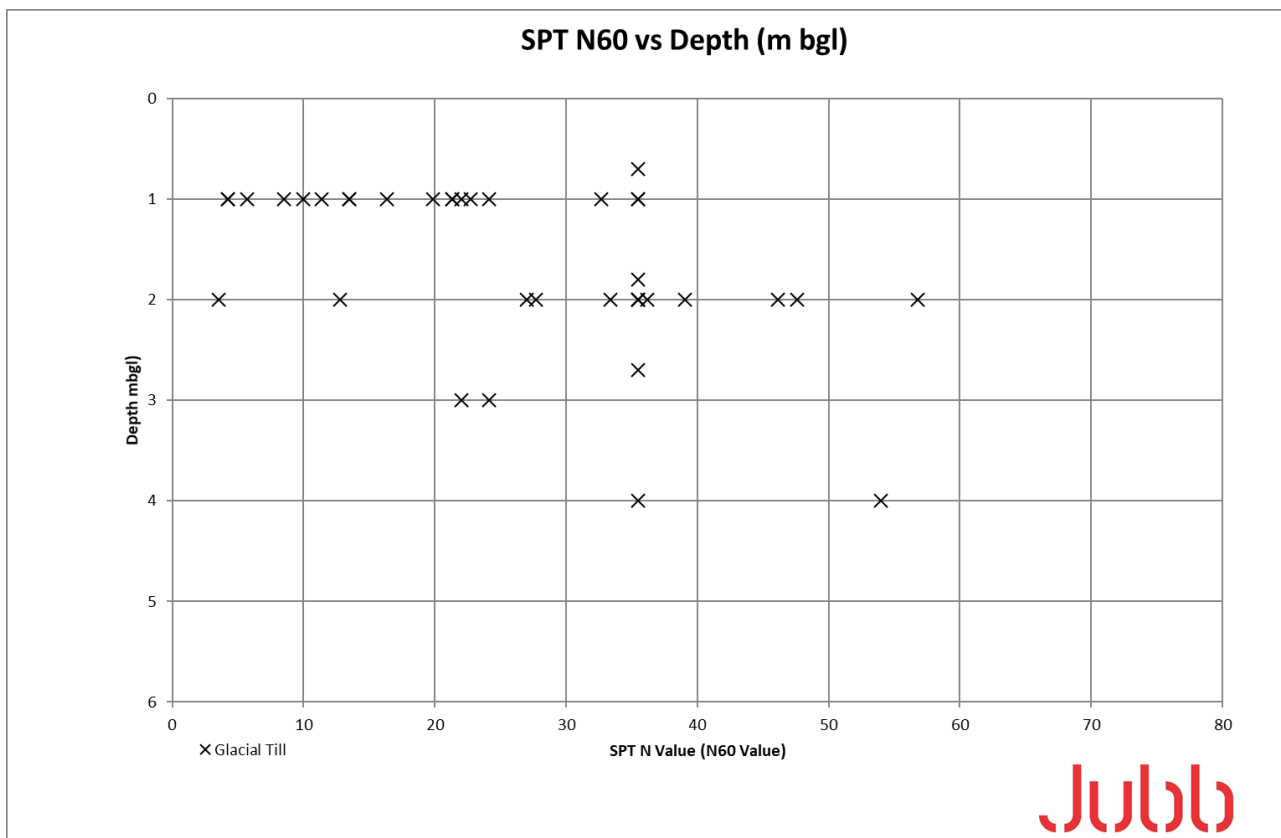
Figure 4. Glacial Till Deposits - PSD grading curves

The results of the PSD testing indicate two distinct material types present at the site within the Glacial Till Deposits:

- Well graded sandy clayey GRAVEL with predominantly fine- to medium-grained sand and medium- to coarse grained gravels; and
- Sandy CLAY/SILT. Sand is predominantly fine to medium grained.

A total of 38 no. Standard Penetration Tests (SPT) were carried out within the glacial till deposits between 1.0 m and 4.0m depth below ground surface level. The results of the SPT testing have been presented in Figure 5 with respect to depth. SPT tests have been corrected to N_{60} to allow for effects of overburden pressure and SPT hammer efficiency.

Figure 5. Glacial Till Deposits - SPT vs Depth



The results indicate an increase in strength with respect to depth with results ranging from N_{60} of 4 at 1 m depth, increasing up to N_{60} of 57 at 2.0 m depth. The majority of window sample holes and final SPT tests were terminated on refusal.

Undrained shear strength values for the glacial till deposits have been obtained from hand shear vane testing within test pits between 0.5 to 1.5 m depth. Peak undrained shear strength values range between 30 to 140 kPa.

Dynamic Cone Penetrometer (DCP) testing was carried out adjacent to TP103, TP104, TP106, TP107, TP109, TP111, TP112, TP113, TP114, TP118 and TP11, which have been presented in Figure 6. The results have been correlated to California Bearing Ratio (CBR) in accordance with the Interim Advice Note 73/06 Revision 1 (2009), design Guidance for Road Pavement Foundations (Draft HD25). The locations of DCP testing were selected within areas of proposed pavement and earthworks. The results indicate a wide range in site CBR values which typically range between 1.1% and 69%. Higher values were obtained; however, these are likely due to encountering oversized clasts present within the made ground.

Figure 6. California Bearing Ratio Results

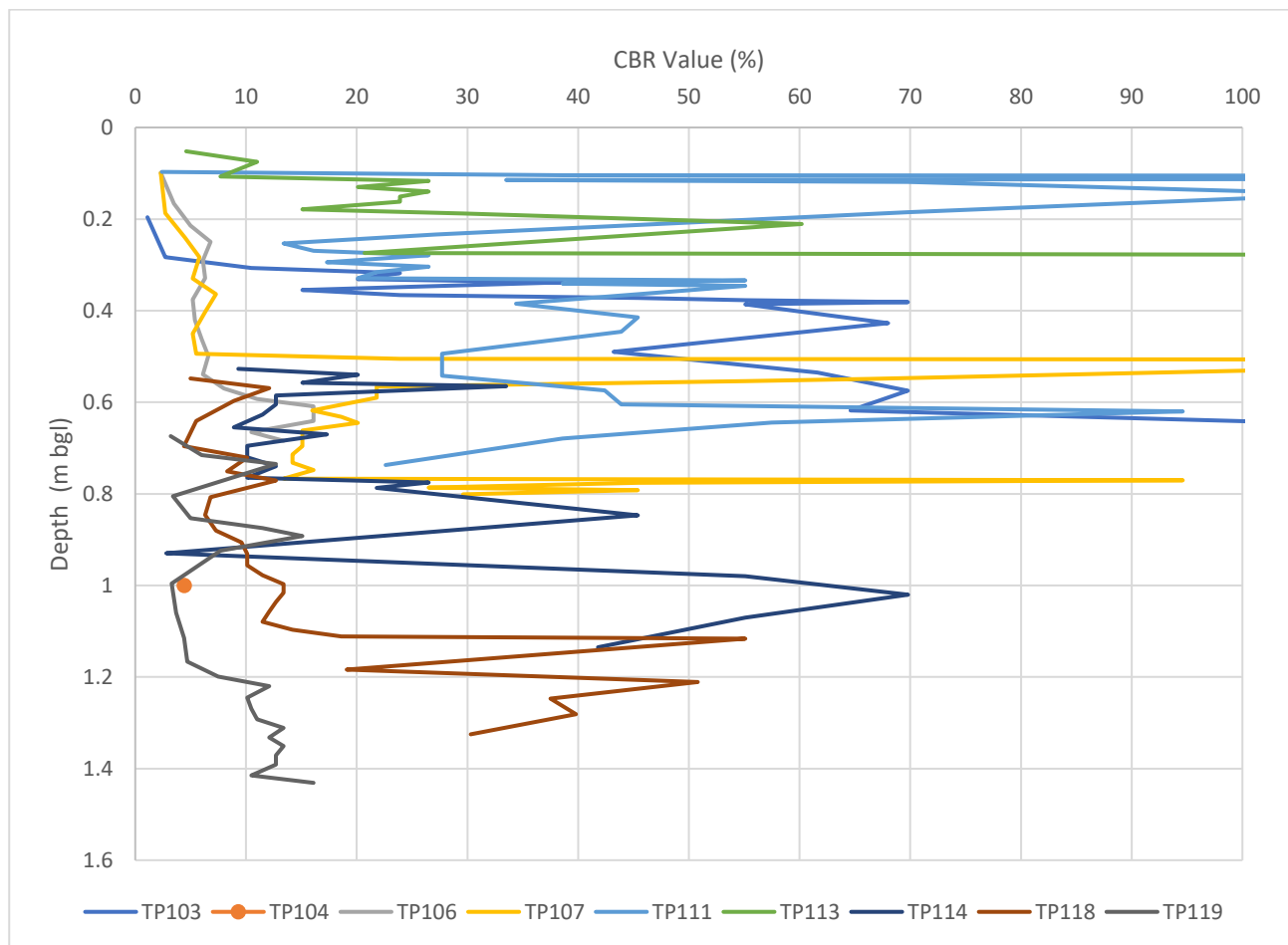


Table 14: Geotechnical Characteristics of Glacial Till Deposits

Characteristic Property	Symbol	Units	Characteristic Values	Source
Unit Weight	γ	kN/m ³	20	-
Angle of Shearing Resistance	ϕ	Degrees	27-31*	2
Undrained shear strength	Cu	kPa	60	1
California Bearing Ratio	-	%	3	3
Coefficient of Compressibility	M_v	M ² /MN	0.096	4

1. In-situ testing.
2. Gibson 1953 Experimental Determination of the True Cohesion and True Angle of Internal Friction in Clays, Proc. of the Third Int. Conf. on Soil Mechanics and Foundation Engineering.
3. Interim Advice Note 73/06 Revision 1 (2009) Table 5.1 Equilibrium Subgrade CBR Estimation.
4. Stroud, M. A., The standard penetration test in insensitive clays and soft rocks, Proc. Europ. Symp. Pen. Testing, Stockholm, 1974. (assumed SPT N-value of 13 based on Stroud and Butler, The Standard Penetration Test and the Engineering Properties of Glacial Materials, 1975 Conf. of the Midlands Geotechnical Society).
5. * Values varies with plasticity.

7.3 Swansea Member – Upper Pennant Sandstone

No classification testing was carried out on the bedrock other than SPT refusals encountered.

8 Generic Quantitative Risk Assessment (Contamination)

8.1 General

The following comprises a Generic Quantitative Risk Assessment (GQRA) of contamination risk, in accordance with the methodology set out in **Appendix E**.

Contamination test results from the earlier phase of Ground Investigation (Integral, 2014) have also been incorporated into the assessment below along with additional hotspot testing.

The following updated conceptual model information has been taken from the information obtained in **Section 4.0 and Section 5.0** and from the site walkover. Contamination testing carried out during the ground investigation has been used to supplement the preliminary conceptual model presented in **Section 4.0**.

8.2 Risks to Human Health

8.2.1 Soils

This section summarises chemical results from both the initial ground investigation carried out by Integral and the recent geotechnical investigation carried out by Jubb.

During the previous phase of ground investigation (Integral, 2014), exceedances for Polyaromatic Hydrocarbons (PAH) were encountered within the made ground in WS2, WS4 and WS5 and Chromium exceedances in all samples, with Arsenic, Copper and Lead exceedances in WS5. Asbestos, namely Chrysotile was also encountered with made ground in WS5. The primary focus of this supplementary phase of ground investigation was to further investigate the potentially affected areas, in particular areas around and under existing slabs.

A summary of the additional chemical test results and a comparison against the relevant assessment criteria used in this case, are given in the tables below.

The generic assessment criteria used in this case are generally the LQM/CIEH Suitable 4 Use Levels (S4ULs), based on minimal or tolerable risk and are intended to be protective of human health. Different criteria are provided for a variety of land use, and the criteria for "Residential without plant uptake" has been adopted here.

Both the C4SL and S4UL are based on current best practice and reflect the most up to date guidance and legislation.

The exception to this is use of the C4SL levels for Lead, as S4UL are not provided for this substance.

In accordance with best practice, individual exceedances of the relevant assessment criteria have been identified and comment provided where necessary.

Total organic Matter results average 3.0%, so assessment criteria relevant to 2.5% organic matter have been adopted where necessary.

8.2.1.1 Metals and Semi Metals

The table below summarises the chemical results for metals and semi-metals on site from a combination of the initial phase of ground investigation and the current supplementary phase of investigation:

Table 15: Summary of Soil Contamination – Metals and Semi Metals

Contaminant	C4SL/ S4UL mg/kg	Source	Measured concentrations mg/kg		95% UCL***	Number of individual exceedances
			Minimum	Maximum		
Arsenic	40	S4UL	4.3	270	55	18/68
Cadmium	85	S4UL	<0.1	3.9	-	0/68
Chromium	910	S4UL	8.8	28	-	0/68
Lead	130	C4SL	4.0	690	120	6/68
Mercury	1.2	S4UL	0.1	0.9	-	0/68
Selenium	430	S4UL	0.2	1.4	-	0/68
Copper	7,100	S4UL	8.2	4600	-	0/68
Nickel	180	S4UL	10	82	-	0/68
Zinc	40,000	CIEH	29	3600	-	0/68
Organic Matter (%)	-	-	0.3	13	-	-
pH	-	-	5.7	11.4	-	-

- C4SL – DEFRA Category 4 Screening Levels (2014).
- S4UL – CIEH/LQM Sutable 4 Use Levels (2015).
- SGV – CLEA Soil Guideline Values (2009).
- *95% Upper Confidence Limit (UCL) statistical analysis not undertaken where there are no contaminant exceedances and/or insufficient number of samples

Arsenic

Exceedances in Arsenic were encountered in 18 no. locations above the adopted Generic Assessment Criteria value of 40mg/kg. Exceedances occurred within SA101 at 0.5 m depth of 95 mg/kg, in TP108 at 0.1 m depth of 50 mg/kg, TP114 at 0.3 m depth of 48 mg/kg, TP121 at 0.3 m depth of 45 mg/kg, WS102 at 0.7 m depth of 61mg/kg, WS110 at 0.5 m depth of 76mg/kg, WS05 at 0.3 m depth of 270mg/kg, TP202 at 0.5 m depth of 77mg/kg, TP203 at 0.5 m depth of 80mg/kg, TP204 at 0.5 m depth of 46mg/kg, TP205 at 0.3 m depth of 54mg/kg, TP206 at 0.3 m depth of 73mg/kg, TP207 at 0.3 m depth of 100mg/kg, TP208 at 0.3 m depth of 54mg/kg, TP218 at 0.3 m depth of 50mg/kg, TP219 at 0.3 m depth of 78mg/kg, TP220 at 0.3 m depth of 51mg/kg and TP223 at 0.3 m depth of 73mg/kg.

Statistical analysis of dataset as a whole indicates a UCL 95 value of 55 mg/kg, which is in excess of the adopted Generic Assessment Criteria of 40 mg/kg.

However, the highest three Arsenic values encountered in the dataset (270mg/kg in WS03, 100mg/kg in TP207 and 95mg/kg in SA101) are both indicated as an outlier to the data set. If these three values are excluded from the dataset, the recalculated UCL 95 value is 40mg/kg, which is at the Generic Assessment Criteria of 40mg/kg.

This would suggest the three highest values of Arsenic encountered are 'hotspots', and not indicative of the site wide concentrations of Arsenic.

The background Arsenic values as published by the National Soil Inventory (NSI) under the DEFRA and BGS dataset indicate average 'background' concentration of 74.14 mg/kg in this area.

As indicated above, the site is located in an area known to be heavily mineralised, which is typically associated with elevated concentrations of various heavy metals, including Arsenic.

Due to absence of any specific anthropogenic source of the elevated arsenic concentrations, it is considered that they are 'naturally elevated' due to the chemistry of the bedrock and subsoil.

Lead

Exceedances in Lead were identified in TP121 of 400mg/kg at 0.3 m depth, in WS5 of 690mg/kg at 0.3 m depth, TP206 at 0.3 m depth of 160mg/kg, TP207 at 0.3 m depth of 160mg/kg and TP219 at 0.3 m depth of 180mg/kg, which is in excess of the adopted Generic Assessment Criteria value of 130mg/kg.

Statistical analysis indicates that this result is an outlier of the dataset. When WS5 is excluded from the dataset, the UCL 95 is calculated at 120mg/kg, which is well below the adopted GAC of 130mg/kg.

This would suggest the result encountered is a 'hotspot', and not indicative of the site wide concentrations of Lead.

8.2.1.2 Speciated PAH

Table 16 summarises the results for speciated PAHs on site, which showed exceedances in Benzo(b)fluoranthene, Benzo(a)pyrene and Dibenzo(ah)anthracene in TP114.

Table 16: Summary of Soil Contamination – PAHs

Contaminant	SGV/ GAC (mg/kg)	Source	Measured concentrations (mg/kg)		95% UCL***	Number of individual exceedances
			Minimum	Maximum		
Acenaphthene	6,000	S4UL	<0.1	6.1	-	0/68
Acenaphthylene	6,000	S4UL	<0.1	0.7	-	0/68
Anthracene	37,000	S4UL	<0.1	31	-	0/68
Benz[a]anthracene	15	S4UL	<0.1	140	-	2/68
Benzo[a]pyrene	3.2	S4UL	<0.1	93	-	4/68
Benzo[b]fluoranthene	4	S4UL	<0.1	180	-	7/68
Benzo[ghi]perylene	360	S4UL	<0.1	49	-	0/68
Benzo[k]fluoranthene	110	S4UL	<0.1	44	-	0/68
Chrysene	32	S4UL	<0.1	130	-	1/68
Dibenzo[ah]anthracene	0.32	S4UL	<0.1	22	-	13/68
Fluoranthene	1,600	S4UL	<0.1	180	-	0/68
Fluorene	4,500	S4UL	<0.1	13	-	0/68
Indeno[123-cd]pyrene	46	S4UL	<0.1	55	-	1/68
Naphthalene	13	S4UL	<0.1	7.8	-	0/68
Phenanthrene	1,500	S4UL	<0.1	71	-	0/68
Pyrene	3,800	S4UL	<0.1	130	-	0/68

Notes:

- S4UL – CIEH/LQM Sutable 4 Use Levels (2015).
- *95% Upper Confidence Limit (UCL) statistical analysis not undertaken where there are no contaminant exceedances and/or insufficient number of samples

Benzo[a]anthracene

Exceedances in Benzo[a]anthracene were encountered in WS4 of 140 mg/kg and in WS5 of 25mg/kg in excess of the Generic Assessment Criteria of 15mg/kg.

Statistical analysis of dataset as a whole indicates a UCL 95 value of 23.8mg/kg, which is in excess of the adopted Generic Assessment Criteria values. The exceedance encountered in WS4 can be considered an outlier, which if excluded from the dataset the UCL 95 is calculated at 4.5mg/kg, which is well below the adopted GAC of 15mg/kg.

Chrysene

A single exceedance of Chrysene was encountered in WS4 of 130mg/kg, which is in excess of the adopted Generic Assessment Criteria value of 32mg/kg. However, the calculated UCL 95 of the dataset is 22.1mg/kg, which is well below the adopted values.

Benzo[b]fluoranthene

Exceedances in Benzo[b]fluoranthene were encountered in WS4 of 180mg/kg and in WS5 of 34mg/kg, TP206 of 4.9mg/kg, TP207 of 5.7mg/kg, TP219 of 15mg/kg and TP220 of 4.1mg/kg in excess of the Generic Assessment Criteria of 4mg/kg.

Statistical analysis of dataset as a whole indicates a UCL 95 value of 16mg/kg, which is in excess of the adopted Generic Assessment Criteria values.

However, the highest two Benzo[b]fluoranthene values encountered in the dataset are both indicated as an outlier to the data set. If these two values are excluded, the recalculated UCL 95 value is 2.2mg/kg, which is below the Generic Assessment Criteria of 4mg/kg.

This would suggest the two highest values of Benzo[b]fluoranthene encountered are 'hotspots', and not indicative of the site wide concentrations of Benzo[b]fluoranthene.

Benzo[a]pyrene

Exceedances in Benzo[a]pyrene were encountered in TP114 of 3.5mg/kg, in WS4 of 93mg/kg, 20mg/kg in WS5 and 8.9mg/kg in TP219 in excess of the Generic Assessment Criteria of 3.2mg/kg.

Statistical analysis of dataset as a whole indicates a UCL 95 value of 8.3mg/kg, which is in excess of the adopted Generic Assessment Criteria values.

However, the highest three Benzo[a]pyrene values encountered in the dataset are both indicated as an outlier to the data set. If these three values are excluded from the dataset, the recalculated UCL 95 value is 0.94mg/kg, which is below the Generic Assessment Criteria of 3.2mg/kg.

This would suggest the three highest values of Benzo[a]pyrene encountered are 'hotspots', and not indicative of the site wide concentrations of Benzo[a]pyrene.

Indeno[123-cd]pyrene

A single exceedance of Indeno[123-cd]pyrene was encountered in WS4 of 55mg/kg, which is in excess of the adopted Generic Assessment Criteria value of 46mg/kg. However, the calculated UCL 95 of the dataset is 9.3mg/kg, which is well below the adopted values.

Dibenz[ah]anthracene

Exceedances in Dibenz[ah]anthracene were encountered in TP114 of 1.0mg/kg, in WS4 of 22mg/kg, WS5 of 3.2mg/kg, TP202 of 0.98mg/kg, TP204 of 1.3mg/kg, TP205 of 1.1mg/kg, TP219 of 2.7mg/kg, TP220 of 1.1mg/kg, TP221 of 0.31mg/kg, TP230 of 0.41mg/kg, TP235 of 0.35mg/kg and TP236 of 0.72mg/kg in excess of the Generic Assessment Criteria of 0.32mg/kg.

Statistical analysis of dataset as a whole indicates a UCL 95 value of 9.3mg/kg, which is in excess of the adopted Generic Assessment Criteria values.

However, the highest three Dibenz[ah]anthracene values encountered in the dataset are indicated as an outlier to the data set. If these three values are excluded from the dataset, the recalculated UCL 95 value is 0.22mg/kg, which is below the Generic Assessment Criteria of 0.32mg/kg.

This would suggest the three highest values of Dibenz[ah]anthracene encountered are 'hotspots', and not indicative of the site wide concentrations of Dibenz[ah]anthracene.

8.2.1.3 Hydrocarbons

Total TPH testing was also undertaken, with the results summarised in Table 17.

Table 17. Summary of Total TPH testing

Contaminant	SGV/ GAC (mg/kg)	Source	Measured concentrations (mg/kg)		95% UCL***	Number of individual exceedances
			Minimum	Maximum		
Total TPH C ₁₀ -C ₄₀	-	-			-	0/58
Aliphatic C ₅ -C ₆	160	S4UL	<1	<1	-	0/58
Aliphatic C ₆ -C ₈	530	S4UL	<1	<1	-	0/58
Aliphatic C ₈ -C ₁₀	150	S4UL	<1	<1	-	0/58
Aliphatic C ₁₀ -C ₁₂	770	S4UL	<1	<1	-	0/58
Aliphatic C ₁₂ -C ₁₆	440	S4UL	<1	<1	-	0/58
Aliphatic C ₁₆ -C ₂₁	110,000	S4UL	<1	811	-	0/58
Aliphatic C ₂₁ -C ₃₅	110,000	S4UL	<1	811	-	0/58
Total Aliphatic C ₅ -C ₃₅	-	-			-	0/58
Aromatic C ₅ -C ₇	1,400	S4UL	<1	<1	-	0/58
Aromatic C ₇ -C ₈	3,900	S4UL	<1	<1	-	0/58
Aromatic C ₈ -C ₁₀	270	S4UL	<1	<1	-	0/58
Aromatic C ₁₀ -C ₁₂	1,200	S4UL	<1	<1	-	0/58
Aromatic C ₁₂ -C ₁₆	2,500	S4UL	<1	1.9	-	0/58
Aromatic C ₁₆ -C ₂₁	1,900	S4UL	<1	2.4	-	0/58
Aromatic C ₂₁ -C ₃₅	1,900	S4UL	<1	750	-	0/58
Total Aromatic C ₅ -C ₃₅	-	-			-	0/58
Petroleum Hydrocarbons EC > 440-70	1900		10	2200		2/58

- S4UL – CIEH/LQM Suitable 4 Use Levels (2015).
- *95% Upper Confidence Limit (UCL) statistical analysis not undertaken where there are no contaminant exceedances and/or insufficient number of samples

The results indicate two exceedances of Petroleum Hydrocarbons EC >44 in TP117 of 2200mg/kg at 0.5 m depth and TP219 of 2100mg/kg at 0.3 m depth exceeding adopted S4UL values of 1900 mg/kg. However, elevated results are considered to be hotspots, and remaining values are well below the adopted assessment criteria.

BTEX and MTBE testing was also undertaken on 6 no. samples, with no detections of any determinants (values <0.01 mg/kg).

8.2.2 Ground Gas

Groundwater monitoring wells were installed within WS104, WS105, WS106, WS108, WS109, WS110, BH101, BH103 and BH104. The results have been presented in Table 18, which to date indicate 0% methane readings within all boreholes, with carbon dioxide levels ranging between 0% and 4.2% and oxygen ranging between 6.8 to 20.8%.

Table 18. In situ ground Gas Monitoring Results

Date	Borehole No:	Water Level (m bgl)	Methane CH ₄ (%)		Carbon Dioxide CO ₂ (%)		Oxygen (%)	Flow Rate (l/hr)	GSV (CO ₂)	CS (CO ₂)	GSV (CH ₄)	CS (CH ₄)
			Peak	Steady	Peak	Steady						
25/10/2019	WS104	1.1	0.0	0.0	0.2	0.2	20.5	0.0	0.0002	CS1	0	CS1
	WS106	0.5	0.0	0.0	2.2	2.2	19.5	0.0	0.00022	CS1	0	CS1
	WS108	0.4	0.0	0.0	0.0	0.0	20.8	0.0	0	CS1	0	CS1
	WS105	0.35	0.0	0.0	0.0	0.0	20.1	0.0	0	CS1	0	CS1
	WS109	0.15	0.0	0.0	0.0	0.0	20.6	0.0	0	CS1	0	CS1
	WS110	Could not locate borehole										
	BH01	13.3	0.0	0.0	3.1	3.1	18.1	0.0	0.0031	CS1	0	CS1
	BH03	25.5	0.0	0.0	0.5	0.5	20	0.0	0.0005	CS1	0	CS1
	BH04	1.45	0.0	0.0	1.9	1.9	18.2	0.0	0.0019	CS1	0	CS1
15/11/2019	WS104	1	0.0	0.0	0.4	0.4	20	-3.4	0.0004	CS1	0	CS1
	WS106	0.38	0.0	0.0	3.1	3.1	18.7	0.0	0.0031	CS1	0	CS1
	WS108	0.3	0.0	0.0	0.0	0.0	20	0.0	0	CS1	0	CS1
	WS105	0.25	0.0	0.0	0.0	0.0	19.5	0.0	0	CS1	0	CS1
	WS109	NP	NP	NP	NP	NP	NP	NP	--	--	-	-
	WS110	Could not locate borehole										
	BH01	12.08	0.0	0.0	4.2	4.2	6.8	0.0	0.0042	CS1	0	CS1
	BH03	24.76	0.0	0.0	0.9	0.9	19.4	-10.2	-0.0918	CS2	0	CS1
	BH04	1.28	0.0	0.0	3.1	2.8	15.0	0.0	0.0028	CS1	0	CS1
16/01/2020	WS104	0.99	0.0	0.0	0.5	0.5	18.0	0.0	0.0005	CS1	0	CS1
	WS106	0.44	0.0	0.0	2.7	2.7	9.6	0.0	0.0027	CS1	0	CS1
	WS108	0.05	NP	NP	NP	NP	NP	NP	-	-	-	-
	WS105	0.3	0.0	0.0	0.0	0.0	14.3	0.0	0	CS1	0	CS1
	WS109	-	-	-	-	-	-	-	-	-	0	CS1
	WS110	Could not locate borehole										
	BH01	12.1	0.0	0.0	2.8	2.8	0.3	4.0	0.112	CS2	0	CS1
	BH03	24.6	0.0	0.0	3.6	3.6	2.7	7.2	0.2592	CS2	0	CS1
	BH04	1.3	0.0	0.0	1.1	1.1	17.4	0.0	0.0011	CS1	0	CS1
20/02/2020	WS104	0.94	0.0	0.0	0.2	0.0	18.5	0.0	0	CS1	0	CS1
	WS106	0.2	0.0	0.0	0.0	0.0	15.7	0.0	0	CS1	0	CS1
	WS108	0.4	0.0	0.0	2.3	0.0	12.5	0.4	0	CS1	0	CS1
	WS105	0.2	0.0	0.0	0.3	0.3	17.7	0.2	0.0006	CS1	0	CS1
	WS109	NP	NP	NP	NP	NP	NP	NP	-	-	-	-
	WS110	Could not locate borehole										
	BH01	11.95	0.0	0.0	2.5	2.5	2.1	0.0	0.0025	CS1	0	CS1
	BH03	24.57	0.0	0.0	0.0		18.4	-3.2	0	CS1	0	CS1
	BH04	1.36	0.0	0.0	2.5	2.5	14.7	5.2	0.13	CS2	0	CS1

NP – Not possible due to shallow groundwater level.

Based on the results to date, no elevated Methane has been encountered with some minor concentrations of Carbon Dioxide. Flow rates are typically, with higher flow rates encountered in WS104 (3.4l/hr), BH103 (10.2l/hr), BH104 (5.2l/hr) and BH101 (4l/hr). However, it should be noted these borehole positions are located to the east

and distant to the building footprint, with installations targeting the underlying bedrock and coal units. Therefore, these elevated results are considered relevant to bedrock units and not the made ground, which encountered low flow levels (WS104, WS106, WS108, WS105 and WS109).

The results have been assessed in accordance with CIRIA C665.

For boreholes with gas installations exclusively within the made ground under the proposed building footprint the highest single reading for gas flow, max CO₂ worst Case GSV of 0.0031 l/hr has been determined, with a Characteristic Situation of CS1 (Very Low Risk).

A classification of Characteristic Situation 1 has been determined, which requires no special gas precautions.

Additional guidance is given within BS8485:2015.

8.2.3 Radon

The Envirocheck report indicates no radon protection measures are required for new developments. Therefore, no radon protection measures are required for new developments.

8.2.4 Asbestos

Ten (44 no.) soils samples were submitted for asbestos screening by Jubb.

Asbestos (Chrysotile) was detected in a single sample from TP119, which identified free unbound fibres of Chrysotile at 0.001% within a sample of made ground within 0.25 m of the ground surface level.

Asbestos was detected within a single sample from WS05, which identified loose Chrysotile fibres at 0.002% within crushed concrete from the demolition rubble at surface.

Asbestos was detected within a single sample from TP224, which identified loose Chrysotile fibres at 0.001% within a sample of made ground within 0.3 m of the ground surface level.

Asbestos was detected within a single sample from TP228, which identified loose Amosite fibres at 0.001% within a sample of made ground within 0.5 m of the ground surface level.

Asbestos was detected within a single sample from TP236, which identified loose Chrysotile fibres at 0.001% within a sample of made ground within 0.3 m of the ground surface level. Removal of made ground and building rubble will need to be carried out in general accordance with the Health and Safety Executive 'Control of Asbestos Regulations' 2012.

8.3 Risk to Controlled Waters

No groundwater testing was carried out during either phase of investigation. Given the outcome of the desktop study and previous reporting, the overall risk to controlled water (groundwater beneath the site) are considered to be low. Elevated concentrations of PAH identified within the made ground are likely to be associated with particulate ash and fragments of bitumen. Elevated areas of Arsenic and Lead concentrations are generally located under the building footprint or areas of proposed pavement and hardstanding, which would have a reduced infiltration rate and low risk for generation of leachate. It is recommended groundwater testing to be carried out to confirm the risk to controlled water.

8.4 Risks to Flora and Fauna

Following the completion of the ecological survey at the site, it is considered there are no significant risks to flora or fauna identified at the site.

Appropriate measures will need to be adopted to ensure any proposed soft landscaping areas are suitable for plant growth, including suitable importation and testing of topsoil, and testing and validating of any site soils to be re-used.

8.5 Risk to Building Materials

Based on Table C2 of the BRE Special Digest 1:2005, any concrete placed within the made ground should be designed with a Design Sulphate (DS) Class of **DS-1** and an Aggressivity Chemical Environment for Concrete (ACEC) Class of **AC-2**. For concrete placed within the glacial till deposits, concrete should be designed with a DS class of **DS-1** and an ACEC class of **AC-1**.

8.6 Risks to Adjacent Land and Third Parties

No significant risk to neighbouring occupiers has been identified.

8.7 Potential Geo-Environmental Liabilities

Potential geo-environmental liabilities under Part 2A of the Environmental Protection Act 1990 (as amended) and the Groundwater Regulations (GWR) 2009, relating to the site in its current condition is not considered likely based on the tests data available.

8.8 Updated Conceptual Site Model

Table 18 below shows the updated conceptual site model, which has been formulated based on the information obtained in the ground investigation and historic data.

8.9 Off Site Disposal

Waste Acceptance Criteria (WAC)

Single Stage and full WAC testing was completed on eleven samples (TP111 at 0.5 m depth, TP117 at 0.5 m depth and TP122 at 0.1 m depth, TP201 at 0.5 m depth, TP206 at 0.3 m depth, TP210 at 0.1 m depth, TP214 at 0.5 m depth, TP219 at 0.3 m depth, TP 224 at 0.3 m depth, TP229 at 0.7 m depth and TP234 at 0.3 m depth). The chemical test results have been compared against the guideline values outlined in BS EN 12457-3.

Test results from TP111 indicate the material to be classified as requiring disposal from site to 'Hazardous Waste' Landfill, due to elevated Selenium values of 1.2mg/kg in excess of the values for inert and stable waste landfill requirements.

Test results from TP117 indicate the material to be classified as requiring disposal from site to 'Hazardous Waste' Landfill, due to elevated Selenium values of 2.2mg/l and sulphates of 1100mg/kg in excess of the values for inert and stable waste landfill requirements.

The test result from TP122, TP206, TP210, TP214, TP224, TP229 and TP234 indicate the soil to be classed as suitable for Inert Waste Landfill disposal.

Test results from TP201 indicate the material to be classed as requiring disposal from site to 'Stable, Non-reactive hazardous waste in non-hazardous Landfill, due to elevated Fluoride values of 16 mg/kg.

Test results from TP219 indicate the material to be classed as requiring disposal from site to 'Stable, Non-reactive hazardous waste in non-hazardous Landfill, due to elevated Total Organic Carbon values of 3.8 %.It should be noted, Landfill WAC analysis should not be used for hazardous waste classification purposes as this does not provide an indication if the waste is in fact hazardous or non-hazardous. The following Hazwaste assessment has been carried out assess these disposal requirements further.

Hazwaste

All soil sample data has been screened and classified in accordance with WM3 methodology (using Hazwaste Software) to identify if the site soils would be classified as hazardous or are non-hazardous waste for disposal purposes.

Of the 34 no. soil samples analysed, the majority were identified as Non-hazardous.

The following samples were identified as Hazardous:

Sample	Depth (m)	Classification	Hazard Properties
TP117	0.5	Hazardous	HP3 (i) Flammable, HP7 Carcinogenic, HP11 Mutagenic
TP121	0.3	Hazardous	HP7 Carcinogenic, HP14 Ecotoxic
WS5	0.3	Hazardous	HP7 Carcinogenic, HP14 Ecotoxic

A copy of the Hazwaste Assessment Report is provided in **Appendix F**.

Sources	Receptor	Pathway	Consequence	Probability	Risk	Recommended Action (to clarify level of risk and assess suitable mitigation measures or to mitigate the risk)
Heavy metals from on-site sources (made ground)	Human Health – site end users	Human pathways uptake	Medium	Likely	Moderate risk	Capping of the site to isolate end users from contamination.
	Human Health – site construction workers	Human pathways uptake	Mild	Likely	Low risk	Use of suitable PPE and good hygiene practice on the site to mitigate risk.
Organics/PAH/ Hydrocarbons from made ground.	Human Health – site end users	Human pathways uptake	Medium	Likely	Moderate risk	Capping of the site to isolate end users from contamination
	Human Health – site construction workers	Human pathways uptake	Mild	Likely	Low risk	Use of suitable PPE and good hygiene practice on the site to mitigate risk.
	Controlled Waters (Groundwater)	Percolation and Leaching	Mild	Low likelihood	Low risk	Significant contamination in soils has not been identified, risks to groundwater considered to be low.
Sulphates and pH	Building Materials	Contact with subsoil or groundwater	Medium	Low likelihood	Low risk	Design Sulphate Class DS-1, Aggressive Chemical Environment for Concrete Class AC-2 within made ground and DS-1 AC-1 within glacial till deposits.
Asbestos potentially in made ground	Human Health	Inhalation	Severe	Unlikely	Moderate risk	Chrysotile asbestos was identified in TP05 and TP119 within made ground and demolition waste. Watching brief required during construction. Capping of the site to isolate end users from contamination.
Ground Gases	Future Site Users	Inhalation	Medium	Unlikely	Very low risk	CS1 classification (Very Low Risk).
	Construction workers	Inhalation	Medium	Unlikely	Very low risk	
Radon	Future Site Users	Inhalation	Medium	Unlikely	Very low risk	The site is in an area where between 1% and 3% of homes are above the Radon action level. Therefore, no radon protection measures are required for new developments.

8.10 Contamination Risk Summary

18 no. exceedances in Arsenic and 6 no. exceedances in Lead were identified at the site above adopted Generic Assessment Criteria in SA101, TP108, TP114, TP122, WS102, WS110, WS5, TP202 to TP208, TP218, TP219, TP220 and TP223.

Elevated PAH were identified in TP114, WS4, WS5, TP206, TP207, TP219 and TP220 and two exceedances of Petroleum Hydrocarbons EC > 44-70 in TP117 and TP219.

Asbestos has been identified within 5 samples tested, with between 0.001% and 0.002% total asbestos detected. Removal of made ground and building rubble will need to be carried out in general accordance with the Health and Safety Executive 'Control of Asbestos Regulations' 2012.

It is understood it is intended to reuse fill material/made ground at the site where bulk earthworks are required (to the east of the site to form the car parking area).

Gas risk at the site has been categorised as Characteristic Situation of CS1 (Very Low Risk) requiring no special protection.

8.10.1.1 Proposed Mitigation Strategy

The principal contamination risk is posed by contact between future site end users (pupils and teachers etc) with potentially contaminated made ground at the site (which contains sporadic hotspots of contamination, as indicated above). **Appendix G** presents a plan showing the distribution of contamination hotspots across the site.

It is likely that a capping strategy will need to be employed in all soft landscaped areas of the site, in order to isolate the made ground from end users, and to allow suitable soft landscaped play surfaces to be constructed.

The capping layer will comprise between 400 – 600mm thickness of clean imported topsoil/subsoil, with a separating membrane at the base (geotextile).

It is expected, the majority of hotspots encountered are in areas of hard landscaping, buildings and roads are proposed. Therefore, no capping would be required within these areas.

Given that there appears to be lack of topsoil on the site, it would be expected that significant import of clean topsoil material would be required anyway.

Some hotspot removal may be required, depending upon final earthworks and material re-use strategy.

A 'Discovery Strategy' will also be provided, to indicate actions that need to be undertaken in the event that unexpected contamination is encountered at the site.

8.10.1.2 Waste Assessment

The WM3 waste assessment indicates most material tested on the site are Non-hazardous, with the exception of 3 no. samples (TP117, TP121, WS5).

This information will need to be considered when finalising earthworks strategy.

9 GEOTECHNICAL ASSESSMENT

9.1 Introduction

It is understood the site will be developed into a primary school with nursery facilities / soft play areas to the western half of the site, rugby pitch to the north of the site and car parking and access roads to the east of the site towards Heol Penlan. The school building will occupy the southern portion of the site and will comprise a 2-storey building to the east and a single storey building to the west to accommodate a change in ground levels. A retaining wall is proposed between the change in levels which it is understood will be incorporated into the building structure. Graded soil slopes are proposed either side of the building to meet the changes in ground level.

9.2 Excavations

At the time of investigation, concrete slabs of the demolished school buildings were present to the western half of the site, with an asphalt covered car park to the southwestern portion of the site. Within these areas, a hydraulic breaker would be required to excavate through the slabs and foundations with grubbing of existing foundations required to a depth of 2 m below expected excavation depth.

Any excavations below slabs and other areas should be readily achievable using standard mechanical plant with toothed buckets, which have been generally proven to an excavation depth of 2.0 m during the recent site investigation, locally up to 4.0 m depth immediately east of the proposed school building. A hydraulic-breaker may be required where excavations extend through the made ground and residual soils into the underlying Swansea Member - Pennant Sandstone and Grovesend Formation weak sandstone, which was described during logging as 'weak light grey, grey and brown SANDSTONE'. However, no rock strength testing was carried out as part of the works to assess further. All excavations should have the appropriate health and safety procedures (shoring or battering to a stable angle) implemented if any personnel are required to enter the excavations.

Where temporary excavation works are required within the made ground which comprises variable orange, grey and black sandy GRAVEL/sandy very clayey GRAVEL/COBBLES and BOULDER deposits, it is expected these are likely to remain stable in the short-term assuming batter slope angles of 1:3 (18°) although this is likely to be reduced if water bearing pockets are encountered (evident during the recent phase of ground investigation). Any excavations primarily within the cohesive glacial till soil strata should be temporarily stable with side batters at an angle of 1:2 (26°). However, it should be noted locally the glacial till deposits were recovered as a very sandy very clayey GRAVEL. Where such non-cohesive material is encountered a short-term batter slope angle of 1:3 (18°) should be assumed.

During excavation of demolition waste and made ground surrounding existing floor slabs, shallow perched groundwater seepages should be expected as shallow as 0.2 m depth bgl along the contact between the made ground and the underlying Glacial Till deposits. A second natural groundwater level was encountered within the bedrock, which ranged between 12.08 m depth bgl in BH01 (south of the site) – within the Pennant Sandstone to the south of the site and increasing to 24.76 m depth within the Grovesend Formation to the north of the site.

9.3 Surface Drainage Considerations

Based on the shallow perched groundwater seepages encountered within the made ground, it is essential for surface water to be controlled around the proposed development, with a cut-off drain above the development installed to intercept surface water flow. It is expected during the removal of existing building slabs to the west of the site, a more significant amount of groundwater will be encountered. Consideration should be made for managing this.

9.4 Foundation Options

Given the variability of the made ground (Made Ground Thickness Isopach - **Appendix H**), properties of the glacial till deposits and sloping nature of the site, it is recommended for the proposed building foundations to be placed

below the glacial till deposits into the underlying weathered Pennant Sandstone bedrock of very sandy clayey GRAVEL and sandy gravelly CLAY. **Appendix I** presents an isopach of depth below current ground level of suitable foundation levels across the site based on laboratory testing and *in-situ* testing undertaken.

Based on the current ground surface level, the foundation isopach in **Appendix I** indicates foundations will generally need to be excavated to between 1.5 m and 2.0 m depth under the proposed single storey building to the west of the site. To the east of the site, where the proposed two-storey building is proposed, up to 3.8 m excavation has been indicated. However, it is understood this portion of the site will be reduced in elevation to accommodate the proposed structure. The localised deepening of the foundation levels encountered at WS107 could potentially be as a result of shallow mine workings, which coincides with where the Swansea Four Feet seam outcrops. It should be noted, no voids were encountered during drilling at this location and SPT results indicate relatively consistent soil strength to suggest this is not the case. During construction, it is recommended for foundations to be deepened to the indicated depths to prevent the risk of differential settlement due to bearing on contrasting materials of varying strength properties.

Table 19 provides a summary of preliminary foundation design options (strip and pad foundations) based on the above assumptions.

Table 19. Preliminary Foundation Design

Foundation Type	Dimensions	Embedment depth (m)	Allowable Bearing Capacity (kPa)	Estimated settlement (mm)
Strip Foundation	0.6 m (w) x 10 m (l)	1.5	145	<20
		2.0	170	<25
Pad Foundations	1 m x 1 m	1.5	195	<25
		2.0	125	<25

Given the uncertainty of the exact design and building loads, allowable bearing capacities have been provided, which assumes a Factor of Safety (FOS) of 3, with less than 25 mm settlement. It is understood the single storey building will have loads in the order of 100kPa and the two-storey building and proposed retaining wall structures will have loads in the order of 150kPa.

For the purpose of analysis, ground water has been modelled at 1.0mbgl.

If the above values are not deemed suitable for the proposed loads, then it is likely that a deeper foundation solution will be required.

9.5 Floor Slabs

Appendix H presents an isopach of the thickness of made ground across the site. Depending in the proposed cut/fill activities on the site, NHBC guidelines state that where made ground is greater than 0.6m in thickness, suspended floor slabs should be used. Made ground was generally found to be highly variable, locally up to 0.9 m thickness under the proposed school building and up to 1.4 m thickness to the north of the MUGA play area. Natural Glacial Till deposits were found to be of low to medium plasticity of low volume change potential.

At the location of the proposed two-storey school building to the east of the site (current site of car parking area), it is likely a ground bearing floor slab can be used. However, depending on the cut/fill activities of the upper single storey school building west of the two-storey building, a suspended floor slab is recommended.

9.6 Protection of Buried Concrete

Six (6 no.) samples were previously tested by Integral Geotechnique for BRE-SD1 with made ground only, which indicated the following results.

Table 20. Summary of BRE-SD1 concrete aggressivity testing carried out by Integral

Location	Depth (m)	pH	Water Soluble Sulphate (mg/l)	Sulphate Total as SO ₄ (mg/kg)
Made Ground				
WS1	0.4	7.5	30	210
WS4	0.2	9.3	450	1400
WS5	0.3	8.9	130	1400
WS8	0.5	6.9	150	660
WS9	0.3	8.8	690	1400
CRUSHED	SUPPLIED	8.4	20	6600

A further ten (10 no.) samples were tested by Jubb within both the made ground and underlying glacial till deposits.

Table 21. Summary of BRE-SD1 concrete aggressivity testing carried out by Jubb

Location	Depth	2:1 Water Soluble Sulphate (mg/l)	Total Sulphate (%)	Total (%)	Sulphur	pH
Made Ground						
WS102	0.0 – 0.6	61.5	0.035	0.02		7.5
TP111	0.5	15.4	0.035	0.015		6.9
TP117	0.5	8.4	0.691	0.311		11.8
Glacial Till Deposits						
WS102	0.7 – 1.5	292	0.092	0.039		8.5
WS105	0.6 – 1.6	48.9	0.029	0.012		6.8
WS106	1.0 – 2.0	27.6	0.022	0.01		6.7
WS110	2.5 – 3.0	12.0	0.013	0.005		6.8
TP104	1.5	20.6	0.029	0.012		6.8
TP114	2.1	96.1	0.031	0.012		7.5
TP120	0.5	12.0	1.07	0.390		11.9

Based on Table C2 of the BRE Special Digest 1:2005, any concrete placed within the made ground should be designed with a Design Sulphate (DS) Class of **DS-1** and an Aggressivity Chemical Environment for Concrete (ACEC) Class of **AC-2**. For concrete placed within the glacial till deposits, concrete should be designed with a DS class of **DS-1** and an ACEC class of **AC-1**.

9.7 Earthworks

The natural surficial materials have been compared to the requirements of the Specification for Highways Works, Series 600 – Earthworks - Manual of Contract Documents for Highways Works, Volume 1.

The majority of natural glacial till materials can be classified as either a class 2A and 2B (Wet and Dry cohesive fill materials) or a class 2C (Stoney cohesive material). In accordance with Atterberg requirements, the glacial till deposits also generally comply with class 7A (Selected cohesive material). It should be noted these deposits contained cobbles and boulders in excess of the required 125 mm maximum particle diameter. On encountering oversized clasts, materials should be screened and/or crushed prior to use during construction.

Proctor compaction testing was carried out on the natural glacial till deposits, which indicated the maximum dry density ranging between 1.72 to 2.04 Mg/m³ and an optimum moisture content 12 to 17% within clay rich material. A single test was carried out on a silt dominant material indicating a maximum dry density of 1.61 Mg/m³ and an optimum moisture content of 24%.

9.8 Pavement Design

Dynamic Cone Penetrometer (DCP) testing was carried out adjacent to TP103, TP104, TP106, TP109, TP112-TP114, TP118 and TP120. The locations of DCP testing was selected within areas of proposed pavement and earthworks.

Between ground surface level and 0.5 m depth below ground surface level, CBR results generally ranged between 1.1 to 49.4%. On the assumption that the initial 0.3 m thickness of overburden will be removed and reworking prior to placement of pavement, a design CBR value of 3% can be assumed.

If materials are exposed to inclement weather for substantial periods of time, the subgrade can soften further, which will require subgrade improvement using a geogrid. Given the CBR values outlined above, a geogrid can be considered to reduce sub-base thickness requirements. A geogrid separator may be required to reduce the risk of the capping layer punching through into the softer cohesive soils.

9.9 Soakaway Design

A total of 6 no. soakaway tests (SA101 to SA106) were carried out at proposed infiltration trench locations in accordance with BRE 365 soakaway testing procedures. At each test location, insufficient falls in test water levels were encountered to allow a soil infiltration rate to be calculated.

Falling head permeability testing was undertaken by Integral Geotechnique within three window sample holes WS3, WS6 and WS7, which indicated infiltration rates of 3.86×10^{-6} m/s, 4.67×10^{-6} m/s and 1.16×10^{-5} m/s, respectively. It should be noted, these tests were not carried out in accordance with BRE 365.

Current soakaway test results indicate the site is not suitable for infiltration trenches.

9.10 Mine Workings

Based on the findings of the desk top study and Coal Authority searches, which indicated the potential for shallow coal mine workings across the east of the site; namely the Swansea Four Feet coal seam, further ground investigation works was required to determine the risks across the site. A total of 5 no. open hole boreholes were drilled along the strike of the Swansea Four Feet coal seam, between 10 to 30 m to the east (i.e. down-dip) of where the coal seam was mapped to outcrop, to an investigation depth of 30 m bgl. The findings of the drilling works have been summarised in Table 22. Based on the data available, it has been estimated the coal seam dips by approximately 16° to the east/east-northeast. This has been calculated based on the mapped outcrop location of the Swansea Four Feet Seam and seam depths encountered during drilling. The sub-cropping contact of the Swansea Four Feet coal seam has been presented in **Appendix J**. It should be noted, the location of the coal seam was based on 1:50,000 scale mapping and therefore, it is possible that there are inaccuracies within the mapping.

BH101 and BH102 were drilled to the south-east of the site, immediately east of the proposed school building (in an area of proposed car parking and access road) within the Swansea Member (Sws). The Swansea Four Feet coal seam was encountered between 6.5 and 8.0 m depth below ground level and ranged between 0.6 to 1.0 m thickness. An un-named seam was encountered between 11.8 to 14.3 m depth. No mine workings were encountered within either coal seams during the drilling of BH101 and BH102.

To the north-east of the site, BH103 and BH104 were drilled, which encountered the Swansea Four Feet coal seam between 7.5 m to 8.0 m in BH103, The Swansea Four Feet seam was not encountered in BH104 (likely to have been missed during drilling). Voids were encountered between 17.1 m to 24.5 m depth, which ranged in size from 0.2 m to 1.0 m in height within the un-named coal seam below the Four Feet. These voids coincide with the depth of the un-named seams identified in BH101 and BH102. No voids were encountered within the Swansea Four Feet Seam. On encountering the voids in BH103 and BH104, it was considered necessary to drill an additional borehole (BH105) to the west of the sub-crop of the Swansea Four Feet seam, within the footprint of the proposed school buildings, to confirm the absence of voids and shallow mine workings. The additional drilling confirmed no

voids within the vicinity of the building within the targeted un-named coal seam. The results have been summarised in Table 22.

Table 22. Summary of Open Hole Drilling Works

Borehole	Depth (m)	Description	Comments
BH101	0.0 – 8.0	Weathered Sandstone	No surficial deposits encountered
	8.0 – 8.6	Coal Seam	Swansea 4 ft Seam
	8.6 – 14.2	Sandstone	
	14.2 – 14.3	Coal Seam	Un-named seam
	14.3 – 30.0	Sandstone	
BH102	0.0 – 5.0	Surficial deposits	
	5.0 – 6.5	Sandstone	
	6.5 – 6.6	Coal	Swansea 4ft Seam
	6.6 – 11.8	Sandstone	
	11.8 – 14.9	Intermittent Coal seams	Un-named seam
BH103	14.9 – 30.0	Sandstone	
	0.0 – 0.8	Surficial Deposits	
	0.8 – 7.5	Sandstone	
	7.5 – 8.0	Coal Seam	Swansea 4ft Seam
	8.0 – 19.5	Sandstone	At 16.5 m loss of water flush
	19.5 – 20.0	Void	
	20.0 – 22.0	Sandstone	
BH104	22.0 – 22.6	Void	
	22.6 – 30.0	Sandstone	
	0.0 – 3.5	Surficial Deposits	
	3.5 – 17.1	Sandstone	
	17.1 – 17.3	Void	At 17.1 m loss of water flush
	17.3 – 23.5	Sandstone	
BH105	23.5 – 24.5	Void	
	24.5 – 30.0	Sandstone	
	0 – 4.5	Surficial Deposits	
	4.5 – 8.0	Broken Sandstone	
	8.0 – 14.0	Sandstone	
	14.0 – 15.5	Intermittent Coal banding	Un-named seam
	15.5 – 20.0	Sandstone	

Available research data for the South Wales Coalfield area (Statham and Treharne, 1991) indicates a safe void height : roof thickness ratio of 1m void height to 12m roof cover to be sufficient to prevent a surface expression of mine working roof collapse. Where a lower roof cover ratio is identified, areas of potential instability have been presented in **Appendix J** based on the depth of voids encountered to the north of the site. The estimated position of where the un-named coal seam crops on the site has also been presented in **Appendix J**, shown to be positioned approximately 30 m west of the Swansea Four Feet seam, which intersects midway through the single storey building.

9.10.1 Mining Workings Risk Assessment

9.10.1.1 Initial Phase Drilling Works (2019)

During the analysis of the data, the following key findings were made, which have been updated in the geotechnical risk register (**Appendix L**):

- Based on the background information from the desktop study and the Coal Authority Mining Report, a mine shaft has been identified to the western site boundary. No development works are expected within 20 m of the expected shaft location, which is in accordance to the CIRIA C758D Abandoned Mine Workings Manual, 2019. No additional mine shafts or adits were identified. Therefore, the risk at the site is expected to be low;
- Although no mine workings were encountered to the south of the site within the vicinity of the proposed school building, shallow workings such as bell pits may be present where the un-named seam or Swansea Four Foot seam sub-crop (see **Appendix J**). It is recommended that during excavation of the

foundation footings, observations of sudden changes in ground conditions (colour, strength, material properties) are noted, which might indicate an infilled bell pit. It is recommended that formations are examined by a Geotechnical Engineer;

- Where deeper founding depths were observed in WS107, there is potential for shallow mine workings where the Swansea Four Feet seam crops. It is possible at this location that coal was abstracted from a shallower level. However, based on the drilling results for BH101 and BH102 and the expected limited thickness of the seam, it is unlikely the coal seam was chased a considerable distance downdip (to the east). No voids or changes in soil strength were observed during the drilling of WS107, suggesting the feature is likely to represent a locally deeper weathered rockhead; and
- Where voids were encountered to the north-east of the site, it is expected void depths will shallow to the north-west of the site, which coincide with the locations of the proposed playing fields. These areas are however, considered of lower risk to the site users than that of the proposed school buildings.

Based on the current information available during the initial phase of investigation works, the proposed development was considered of 'medium risk' of being affected by mine workings, either by sudden collapse of the ground surface (due to the cohesive nature of the surficial soil deposits, which favour 'drop-out' sinkhole features) or ground subsidence due to progressive collapse and infilling of cavities beneath the development. This is presented in **Appendix J**, where hatched areas indicate areas with insufficient rock cover above the expected void depth.

In order to reduce the risk of shallow mine workings at the site to 'low risk', it was envisaged either an additional phase of ground investigation or a pre-construction enabling phase of works would be required, predominantly across the western portion of the site in a grid arrangement in order to fully characterise the nature of the voids encountered, assess the risks further and determine the requirement for remediation (such as drill and grouting of mine workings), relating to the production of a Drill and Grouting Works Specification and Geotechnical Design Remediation Report (GDR) if voids/mine workings were encountered. The following outlines the details of each option:

Enabling Phase 'Remedial' Works

The following enabling works options were presented to the client, with the intent of the works to be completed as an enabling package for construction:

- Open hole (proof) grid drilling the entire development footprint including building footprint, roadways, car parking areas and play areas; or
- Open hole (proof) grid drilling of the entire proposed building footprint, including a buffer around the building to allow for presence of voids within the vicinity of the building footprint. Although only part of the proposed building falls within the hatched area identified in **Appendix J**, as a minimum, the entire building is recommended to eliminate other possible mine workings below the un-named seam.

Drilling and grouting remediation works were to be carried out on encountering voids during this phase of works. The GDR report was to provide a detailed review of colliery records for the site as part of this phase of works to obtain detailed maps and plans of the site. A detailed review of additional open hole drilling works would be carried out parallel to drilling works and a design/specification for remediation 'drill and grout' works shall be completed, if required.

Additional Ground Investigation

Alternatively, an additional phase of ground investigation option was proposed to be carried out prior to construction, comprising the following scope of works:

- Trial trenching across the proposed building footprint to identify shallow mine working such as bell pits; and
- Open hole drilling using a coarsely spaced grid over the building footprint to enable scoping of further drill and grout works to be carried out during the construction phase.

An update to the ground conditions report (GCA) would be produced as part of the additional phase of ground investigation to further assess the risks of voids/mine workings beneath the building footprint and recommend remediation requirements.

9.10.1.2 *Supplementary Phase Drilling Works (2020)*

9.10.1.2.1.1 General

Based on the above recommended additional investigation/remedial works options, it was decided by the client and BAM to proceed with open hole (proof) grid drilling of the entire proposed building footprint, including a buffer around the building to allow for presence of voids within the vicinity of the building footprint.

A total of 39 no. additional open hole boreholes were proposed by Jubb. Boreholes were positioned on a primary grid spacing of 12 m x 12 m across the proposed building footprint and extended by approximately 3 m beyond the outside edge of the building. The borehole layout has been presented in **Appendix K**, which includes the secondary grid borehole layouts (6 m x 6 m spacing) and tertiary grid borehole layouts (3 m x 3m spacing) in accordance with recommended borehole spacings outlined in the CIRIA Abandoned mine workings manual (2019).

Based on the projected depth of the un-named coal seam presented in **Appendix J** and the estimated sub-cropping position of the seam, it was considered necessary for all boreholes to be drilled to a depth of at least 15 m bgl in order to intersect the potential coal seam (which assumes 3 m of intact rock mass is encountered at the base of each borehole position).

Jubb have produced a Drill and Grouting Specification (Ref: 19264-SPEC01_Drill and Grouting Specification_Final-2020-02-21, dated 21st February 2020), which is provided within **Appendix L** to outline drilling requirements and grouting methodology, which was followed by the contractors during the works. During the drilling works, a key criterion which required fulfilling was to confirm the presence of at least 3 m of intact sandstone/mudstone bedrock at the base of each borehole. This was determined as sufficient in confirming no mine working and/or areas of broken ground were present (however, this is expected to be weathered fractured bedrock). Boreholes were extended beyond the original 15 m depth in order to confirm intact bedrock (BH204 to BH208, BH210, BH220 and BH229 to BH236).

9.10.1.2.1.2 Summary of drilling works

Supplementary open hole drilling works were carried out between 27th February and 17th March 2020 (BH201 to BH236), using a Klemm KR802-2 X5 drilling rig completed by Apex Drilling Services Ltd. The results of the drilling have been summarised in Table 23.

Table 23. Summary of Supplementary Drilling Works

Borehole ID	Depth (m bgl)			Coal Seam (top depth/thickness)	Final Borehole Depth (m bgl)	Voids Encountered (Yes/No)
	Made Ground (m bgl)	Weathered Sandstone (Sandy CLAY GRAVEL and BOULDERS (m bgl))	Mudstone / Sandstone (m bgl)			
BH201	-	0.0 - 11.5	11.5 - 15.0	-	15	No
BH202	-	0.0 - 10.8	10.8 - 15.0	-	15	No
BH203	-	0.0 - 11.5	11.5 - 15.0	-	15	No
BH204	0.0 - 1.2	1.2 - 12.5	12.5 - 15.5	-	15.5	No
BH205	-	0.0 - 13.5	13.5 - 16.5	-	16.5	No
BH206	-	0.0 - 14.9	14.9 - 18.0	-	18	No
BH207	0.0 - 1.4	1.4 - 12.5	12.5 - 15.5	-	15.5	No
BH208	0.0 - 1.5	1.5 - 6.0	6.0 - 15.5	-	15.5	No
BH209	0.0 - 1.5	1.52 - 11.8	11.8 - 15.0	-	15	No
BH210	-	0.0 - 12.4	12.4 - 15.4	-	15.4	No
BH211	0.0 - 1.3	1.3 - 11.9	11.9 - 15.0	-	15	No
BH212	0.0 - 0.9	0.9 - 11.0	11.0 - 15.0	-	15	No
BH213	0.0 - 0.5	0.5 - 11.8	11.8 - 15.0	-	15	No
BH214	-	0.0 - 12	12.0 - 15.0	-	15	No
BH215	-	0.0 - 11.1	11.1 - 15.0	-	15	No
BH216	0.0 - 0.5	0.5 - 11.0	11.0 - 15.0	-	15	No
BH217	0.0 - 0.3	0.3 - 12.0	12.0 - 15.0	-	15	No
BH218	0.0 - 0.4	0.4 - 9.5	9.5 - 15.0	10.3 - 11.1 (0.8)	15	No
BH219	0.0 - 0.3	0.3 - 10.6	10.6 - 15.0	-	15	No
BH220	0.0 - 0.3	0.3 - 14.5	14.5 - 18.3	-	18.3	No
BH221	0.0 - 0.5	0.5 - 8.2	8.2 - 15.0	-	15	No
BH222	0.0 - 0.5	0.5 - 12.0	12.0 - 15.0	-	15	No
BH223	0.0 - 0.5	0.5 - 11.5	11.5 - 15.0	-	15	No
BH224	0.0 - 0.5	0.5 - 11.3	11.3 - 15.0	-	15	No
BH225	0.0 - 0.5	0.5 - 12.5	12.5 - 15.5	-	15.5	No
BH226	0.0 - 0.5	0.5 - 11.5	11.5 - 15.0	-	15	No
BH227	0.0 - 0.5	0.5 - 11.8	11.8 - 15.0	-	15	No
BH228	0.0 - 0.5	0.5 - 11.0	11.0 - 15.0	-	15	No
BH229	0.0 - 0.5	0.5 - 14.5	14.5 - 17.5	-	17.5	No
BH230	0.0 - 0.5	0.5 - 13.5	13.5 - 16.5	14.8 - 15.2 (1.3)	16.5	No
BH232	0.0 - 0.7	0.7 - 13.9	13.9 - 17.0	-	17	No
BH233	0.0 - 0.8	0.8 - 14.0	14.0 - 17.0	-	17	No
BH234	0.0 - 0.5	0.5 - 13.8	13.8 - 17.0	-	17	No
BH235	0.0 - 0.3	0.3 - 13.2	13.2 - 17.0	-	15	No
BH236	0.0 - 0.3	0.3 - 13.0	13.0 - 16.0	-	16	No
BH237	-	0.0 - 10.5	10.5 - 15.0	11.5 - 12.0 (0.5)	15	No
BH238	-	0.0 - 9.5	9.5 - 15.0	-	15	No
BH239	-	0.0 - 8.2	8.2 - 15.0	-	15	No

Note: - Note Encountered

The results indicated a relatively consistent thickness of made ground overlying a consistent thickness of weathered sandstone material (average of 11.4 m thickness) overlying intact sandstone bedrock which was proven for at least 3 m thickness. Coal seams were encountered within three of the boreholes (BH218, BH230 and BH237) below 10.3 m depth to the east of the site. The results of the drilling works confirmed no voids present within any of the boreholes drilled under the footprint of the proposed building to the investigated depth based solely on drilling works.

9.10.1.2.1.3 Summary of grouting works

Records of the grout volumes within each borehole need to be fully assessed in order to update the risk assessment for shallow mine workings. Although no mine workings were encountered within each borehole, broken ground from historical collapsed mine workings would become evident during the grouting works where excessive grout is required to fill borehole positions.

Grouting works were completed by Apex Drilling between 13th and 15th July 2020. Grouting works were carried out in general accordance within the Jubb Drill and Grout Specification of Shallow Mine Workings (Doc Ref: 19264-SPEC-01, dated February 2020). Due to the small quantity of grout required to fill the boreholes and the availability of PFA, it was decided to use a bagged pre-blended cementitious grout – Pozament – GM Grout during the works, which was selected by Jubb based on its ability to infill small voids and broken ground.

Grouting records and volumes of grout used have been provided within **Appendix N**, which indicate 0.25 tonnes of grout were required to fill a 15 m borehole, 0.275 tonnes to fill a 16.5 m deep borehole and 0.3 tonnes of grout to fill up to a 18 m deep borehole. Based on the drilled borehole diameter of 110 mm and an assumed unit weight of grout of 16 kN/m³, boreholes have been filled with the appropriate volume of grout, which indicates no voids or collapsed mine works were encountered during the drilling works.

Based on the results of the drilling and the grouting works, the site is considered 'low' risk' for mine workings.

9.10.2 Mine Entry / Adit / Well Investigation

Following requested planning requirements as specified by the Coal authority (Ref: Letter from The Coal Authority, Planning Application : P2019/5679, dated 7 January 2020, from Deb Roberts – Planning Liaison Manager), trial trenching was carried out within the expected location of a mine adit/well located along the western site boundary on 20th February 2020. The results of the findings have been documented within our technical note (Ref: TN01-Mine_Adit_Investigation_2020-03-06, dated 6th March 2020), which has been presented in **Appendix O**.

The following provides a summary of the key findings from the investigation:

- Mine entry/well was encountered at co-ordinates 273,254E and 197,881N (British National Grid), with the centre of the well located approximately 3 m from the western site boundary and access road;
- The top of the mine entry/well was located approximately 1.9 m below the crest of the embankment;
- The well/mine entry was approximately 2.0 m in diameter (outer diameter) and roughly circular in shape;
- The walls of the well/mine entry were constructed of tabular sandstone blockwork <200 mm in size; and;
- The well/mine entry was backfilled with a dark reddish-brown clinker/slag gravel, cobble and boulder backfill, with sub-angular to rounded clasts up to 250 mm in size observed. Voids were observed within the backfilled material.

Although clinker/iron waste backfilling was observed within the feature, the exact nature and extent of backfilling is unknown. Therefore, given the proximity of the feature to the proposed development (in excess of 15 m), it is recommended for the well/mine entry to be plugged/capped as follows:

- Demolition of existing wing-retaining wall structure;
- Excavation of the well location down to approximately proposed design level of the school. Given the proximity of the well and excavation works to the road above, it is likely sheet piling will be required to support the upslope material. Temporary works design will be required prior to completion of these works;
- Capping of the feature with a mass concrete plug – the plug is to be 2 times the diameter of the well (4m diameter), which should be excavated down to the finished ground level of the school building. The concrete plug shall be 75% the thickness of the feature width (1.5 m thickness); and

- Reinstatement of the embankment to form slopes at 1V:2.5H.

9.11 Site Slope Stability Assessment

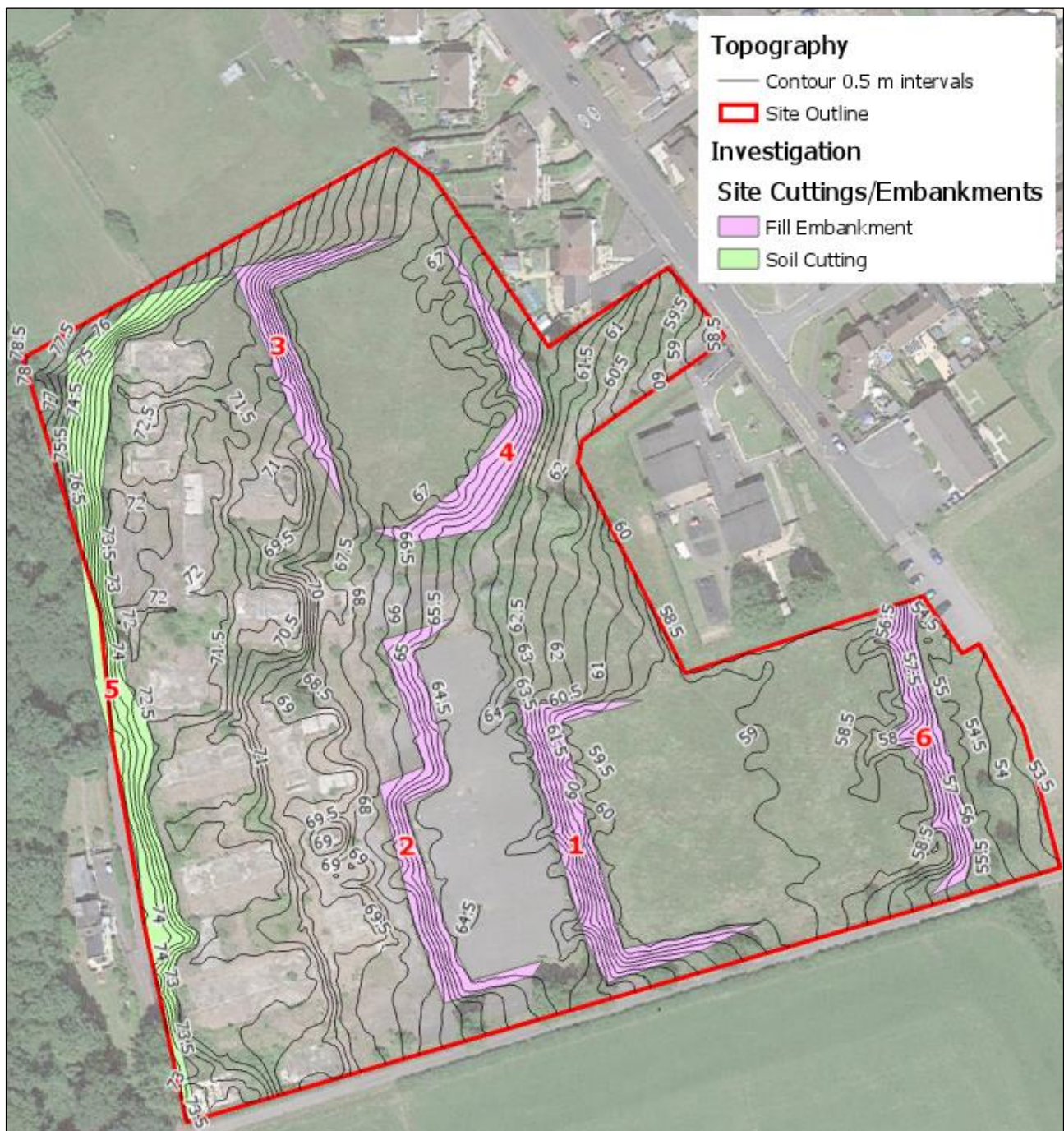
9.11.1 Existing Slopes

As previously discussed, the site in its current form has numerous fill embankment batters and soil cuttings. During the site inspection/visit these cuttings/embankments were inspected to assess the composition, slope geometry and identifying any indications of slope instability. The cuttings/embankments have been summarised in Table 24 and presented in Figure 7. It should be noted minor terraces present between building platforms to the west of the site have been excluded from this analysis as these will be removed during the development of the site.

Table 24. Summary of soil cuttings and embankments present at the site

ID	Location/Nature	Slope Angle Observed (Degrees)	Cutting / Embankment Height (m)	Slope Composition	Comments
1	Fill Embankment – east of car park	26 – 28°	4.5	Soft to firm brown high plasticity sandy CLAY with silt.	Slope appears stable, with grass covered surfaces. Brick staircase towards the centre of embankment.
2	Fill Embankment – west of car park	30°	4.0	Firm grey mottled orange brown gravelly CLAY	Slope appears stable, with grass covered surfaces.
3	Soil Cutting/Fill Embankment – west of playing field to the north of site.	28°	4.5	Firm brownish orange slightly sandy slightly gravelly CLAY	Slope appears stable, with grass covered surfaces. Underground reservoir to north of cutting
4	Fill Embankment – east of playing fields	36 - 38°	4.0	Firm gravelly sandy CLAY with silt.	Slope covered with grass. Minor landslip observed to the southeast, failing at 38°.
5	Soil Cutting	30 – 38°	3.0	Stiff slightly sandy gravelly CLAY	Slope covered with grass. Two brick retaining walls (single skin) and concrete retaining wall present up to 2.5 m in height. Generally good condition, minor cracking observed in one.
6	Fill Embankment – east of playing fields	21°	3.5 – 4.0	No investigated – not on site	Slope appears stable, with grass covered surfaces.

Figure 7. Cutting and Fill Embankments Present on the site



A total of 6 no. major cuttings and embankments were observed across the site, which generally ranged in height between 3.5 to 4.5 m with slope angles generally between 26 to 30°. However, these were locally observed up to 36 to 38°. Generally, the batters comprised of either natural or reworked natural soils, described as soft to stiff, brownish orange and grey gravelly sandy CLAY. All batter slopes were found to be vegetated with grass. Retaining wall structures were observed in Soil Cutting No. 5 along the western site boundary, which were of either single skin brick construction or concrete and in good condition. Slope instability was observed within to the southern extent of Fill Embankment No. 4, where a minor scarp was observed. The slip has now revegetated, and no recent instability was evident. During the inspection, no groundwater seepage was observed within any batter surface. It is therefore considered that with the exception of fill embankment 4, existing slope batters are

considered marginally stable in their current condition. Slope batters can therefore be modified at Fill Embankment No. 4 in line with findings and recommendations outlined in Section 9.11.

9.12 Proposed Slopes

It is proposed to construct a 5.5 m high soil embankment at the location of the existing Embankment No.2 (see Figure 7). The slope is to form a natural unsupported soil slope. In addition, it is expected the existing slopes no. 1, 3 and 4 will be modified during earthworks.

Slope Stability modelling has been carried out using Rocscience Slide 2018 software. The analysis was carried out based on the following assumptions:

- The soil slopes will be constructed using compacted site won reworked natural 'glacial till deposits';
- The soil slopes will be up to 5.5 m in height (based on the crest of the cutting at 69.5 m AOD and the toe of the cutting at 64 m AOD);
- A conservative internal angle of friction (ϕ) of 27° has been selected for the Glacial Till Deposits, which is based on encountering high plasticity clay;
- A surcharge of 10kN/m^2 has been applied 1 m from the crest of the cutting to simulate machinery during the construction phase. During operation of the school, loads are not envisaged to exceed 2.5kN/m^2 ; and
- Groundwater has been assumed to be present at 1m below ground level. It should be noted groundwater was actually encountered as shallow as 0.05m depth bgl which represented perched surface water within the fill. However, it is envisaged during the construction and operation of the proposed development, surface water will be sufficiently managed.

Slope stability analysis was initially carried out assuming embankment slope angles of 18° (1V:3H) and 21° (1V:2.5H) in accordance with the proposed design considering groundwater and loading variation. The results have been assessed in accordance with Eurocode 7, Design Approach 1, Combination 1 and 2, which assumes a Factor of Safety (FoS) >1 to represent stable conditions and are presented in **Appendix P** and summarised in Table 25.

Table 25. Summary of Slope Stability Analysis

Slope Criteria		18° Slopes (1V:3H)		21° Slopes (1V:2.5H)	
		Eurocode 7 Design 1 Combination 1	Eurocode 7 Design 1 Combination 2	Eurocode 7 Design 1 Combination 1	Eurocode 7 Design 1 Combination 2
10 kN/m ² surcharge (during construction)	Slope without groundwater	1.563	1.25	1.351	1.081
	Slope assuming groundwater present at 1.0m depth	1.269	1.102	1.221	1.002
2.5 kN/m ² surcharge during operation	Slope without groundwater	1.563	1.25	1.351	1.081
	Slope assuming groundwater present at 1.0m depth	1.322	1.103	1.219	1.012

The results indicate for a 1V:3H (18°) unsupported soil batter the slopes will remain stable during construction and operation given the assumed surcharge loads applied. When considering increasing the soil slopes to 1V:2.5H (21°), operational loads are considered stable. However, under saturated ground conditions under Eurocode 7 Design Code 1 Combination 2, a marginal FoS of 1.002 was obtained. Although this is considered stable, the 10kN/m^2 surcharge was then moved to 2 m away from the crest of the slope, which increased the FoS to 1.012.

It is therefore recommended that soil slopes at the site can be constructed using compacted site won (reworked natural soils) to form batter slopes not exceeding 1V:2.5H. However, during construction heavy plant and machinery should not be placed any closer than 2 m from the crest of slope. It is recommended for the soil slopes to be protected from soil erosion caused by surface water flow by either applying hydro-mulch to encourage a grass bank or by an erosion protective blanket such as Geobrugg TECMAT.

10 GEOTECHNICAL RISK REGISTER

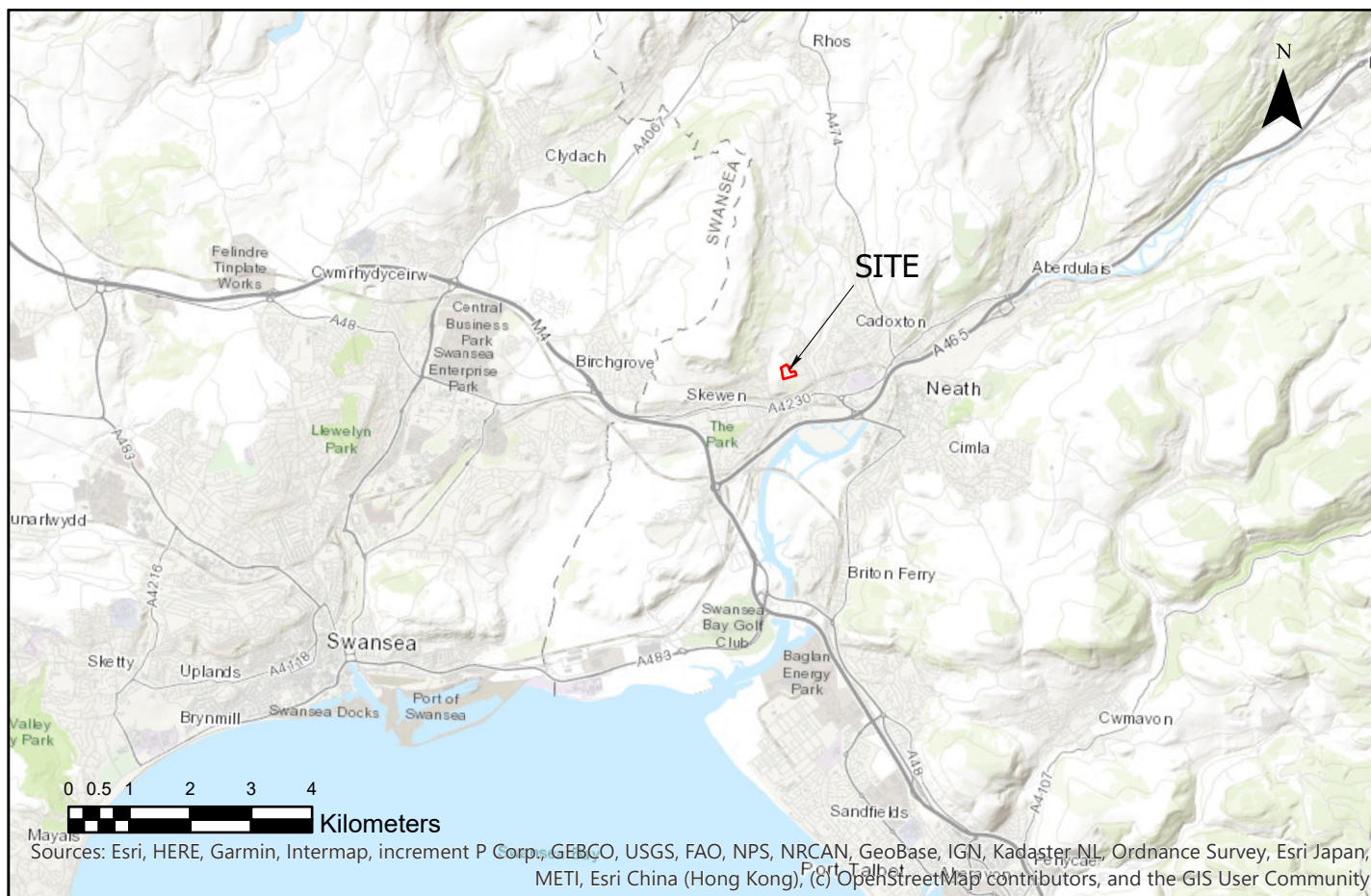
A Geotechnical Risk Register is a method of identifying hazards which may arise during the construction phase of works based on the data currently obtained for the site. The register is a work in progress and as further information arises, it should be updated in order to quantify the risk. At this stage, the aspects covered by the register are attributed to Cost and Health and Safety, although as site works commence, programme may become a prominent factor.

A Ground Risk Register that was started at the commencement of the ground investigation is contained within **Appendix Q**.

11 References

- BS EN 14688 – 2 (2004) + A1 (2013) Geotechnical investigation and testing. Identification and classification of soil. Principals for a classification.*
- BS EN 14689 – 1 (2003) Geotechnical investigation and testing. Identification and classification of rock. Identification and description.*
- BS EN 14688 – 1 (2002)+ A1 (2013) Geotechnical investigation and testing. Identification and classification of soil. Identification and description.*
- BS EN. (2007). 1997-1 Eurocode 7 Geotechnical design – Part 1 General rules. BSI Standards Limited.*
- BS EN. (2007). 1997-2 Eurocode 7 - Geotechnical Design - Part 2: Ground Investigation and testing. BSI Standard Ltd.*
- BSI. (2015). BS5930 Code of Practice for Ground Investigations.*
- BSI. (2015). BS8004 Code of Practice for Foundations.*
- Carter, M, and Bentley, S, P. (1991). Correlations of soil properties. Michigan: Pentech.*
- CIRIA Report 156 - Infiltration drainage - Manual of good practice. (1996). CIRIA.*
- Leach, B. A. (1979). The design and performance of large diameter bored piles in weak mudstone rocks. Proceedings of the 7th European Conference of Soil mechanics and Foundation Engineering 3, (pp. 101-108). Brighton.*
- NA to BS EN. (n.d.). 1997-1:2004 UK National Annex to Eurocode 7: Geotechnical design - Part 1: General Rules. BSI Standards Limited.*
- NA to BS EN. (n.d.). 1997-2:2004 UK National Annex to Eurocode 7: Geotechnical design - Part 2: Ground investigation and testing. BSI Standards Limited.*
- Parry, D and Chiverrell, C (eds) (2019). Abandoned mine workings manual, C758D, CIRIA, London, UK.*
- Statham, I. and Treharne, G. (1991). Subsidence Due to Abandoned Mining in the South Wales Coalfield, UK: Causes, Mechanisms and Environmental Risk Assessment. International Symposium on Land Subsidence, May 1991, Publ. no. 200.*
- Stroud, M. A. (1975). The standard penetration test and the engineering properties of glacial materials. Birgminham: Proceedings of the symposium of glacial materials.*

APPENDIX A - SITE LOCATION PLAN



Appendix A: Site Location Plan

Jubb

APPENDIX B - PROPOSED SITE DEVELOPMENT PLAN



This drawing must not be scaled. Figured dimensions and levels to be used. Any inaccuracies must be notified to the architect.

Detailed drawings and large scale drawings take precedence over smaller drawings.

P01	Silt plan layout updated to reflect revised building footprint, Footpaths/cycle ways updated and widened to 2m, Initial fence/secure lines indicated, Hydrant tank added, Habitat strip indicated along western boundary, 23.06.2019
P02	MUGA allocated at client request (subject to drainage levels strategy); Hedge and fence line shown to back of staff parking, Nursery hard play area formed to front of building, 07.10.2019
P03	MUGA position adjusted (moved west), Nursery/hard play fence changed to 1.8m high anti climb fence 08.10.2019

PRELIMINARY	
PLANNING	
DESIGN	
TENDER	
CONSTRUCTION	

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Contract: Neath Port Talbot County Borough Council
Title: Neath Abbey Primary
Proposed Site Plan

PDA JOB NO:		19014	
SITE	ORIG.	DIS.	DRG NO.
	PDA	A	1/4 ZZ DR A 05 1002
		VOLUME	LEVEL
		DATE/TIME	NUMBER
			PO3

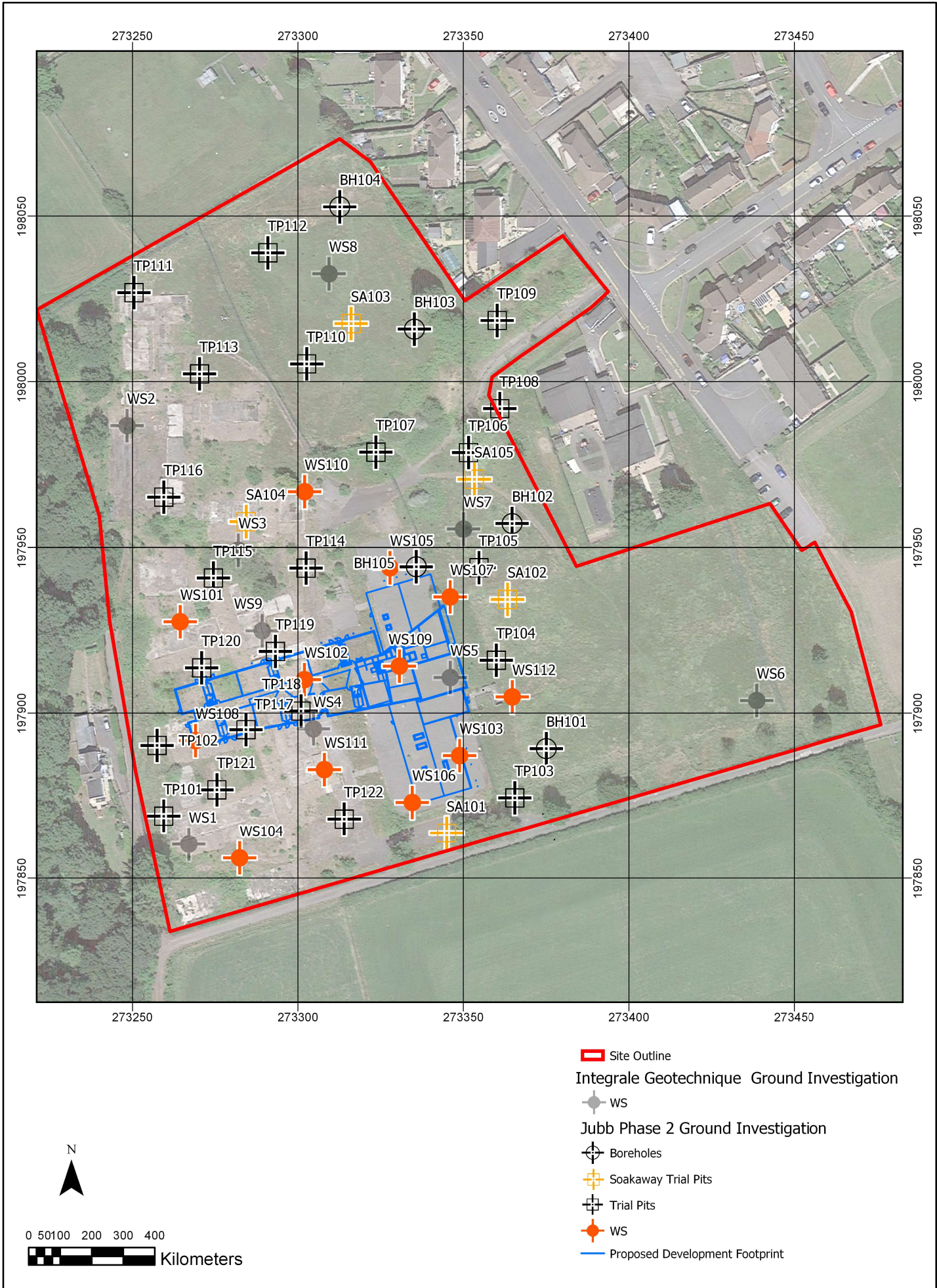
Scale: 1:500 @A1

Date: 18.09.2019

Drawn: RW

Checked: AD

APPENDIX C – EXPLORATORY HOLE LOCATION PLAN



Exploratory Hole Location Plan



APPENDIX D – SITE WALKOVER SURVEY RECORD

Walkover Survey Record

Project	Abbey School	Date	23/9/2019
Location	Neath, Wales	Weather	Overcast with showers
Client	BAM Construction	Contact	Rhys Lewis

Site Visit Objectives

Site walkover to assess general site condition and site investigation constraints.

Site Visit Notes

Site Description

The overall terrain around the site slopes at around 10-15° to the east. The site has been extensively terraced to form 5 no. separate level. The changes in levels were generally covered by grassed batters forming between 28 to 34° slopes. The site was formerly used as Abbey School, which was demolished after 2010 and is currently derelict. Building platforms and foundations of the old buildings were present at the time of inspection comprising some 19 no. buildings. An asphalt car parking area is present towards the central southern section of the site. Large terraced grass areas (former playing fields) are present to the north-east and south-east of the site.

Access to the site is from The Drive via a padlocked gate towards the midpoint of the site boundary. The site has been secured using 2 m high steel palisade fencing around the perimeter. At the time of inspection, an ecological survey was being undertaken, whereby a reptile barrier (0.5 m high) was installed around the entire site.

A water well is known to be present on site along the western site boundary. However, at the time of inspection the exact location could not be found. In addition, 2 no. stormwater drains were observed along the western site boundary, both with water <0.5 m below ground surface level.

A minor landslide was observed in a section of fill batter to the south of the northern playing field with slope angles in excess of 38°. The slip was considered minor in nature (<0.5 m depth).

Several existing retaining walls were observed at the site. Walls were generally of single skin block or concrete in construction, with minor cracking observed within some of them.

The site is bound to the north by a covered reservoir, to the east by residential housing and a primary school, to the south by The Drive and farmland and to the west by woodland and a residential property, which is 4 m above the site on top of a soil cutting.

Services on site comprise mains water, which runs approximately east-west across the centre of the site. At the time of inspection, a service locator was on site establishing the location of underground services.

Contamination Indicators	
Made ground and demolition waste material observed around existing floor slabs.	
Information for Planning Ground Investigation	
Plan marked up with suggested ground investigation locations based on site obstructions and access restrictions.	
Photographic Record	
	
Plate 1: Looking north from site entrance (southern corner).	Plate 2: Looking north-west towards residential house on western site boundary.
	
Plate 3: Looking north along upper terrace platform from south-western corner.	Plate 4: Potential well location along the middle of the western site boundary.
	
Plate 5: Northern extent of the site looking north, underground reservoir along site boundary and concrete retaining wall to the northwest.	Plate 6: Demolition materials (predominantly crushed brick and concrete) form batters around most building platforms.



Plate 7: Looking south from the centre of the site demonstrating multiple terracing of the site.



Plate 8: view from the centre of the site looking north towards northern most playing field and soil batters.



Plate 9: Photograph of minor slip present to the central eastern area of the site in fill batter.



Plate 10: View looking north from south-eastern corner of site on lower playing field, soil batter and existing brick staircase.

APPENDIX E - CONTAMINATION RISK ASSESSMENT METHODOLOGY AND DEFINITIONS

CONTAMINATION ASSESSMENT METHODOLOGY

The DEFRA and Environment Agency Contaminated Land Report 11 (CLR11) 'Model Procedures for the Management of Land Contamination' provides a technical framework for structured decision making about land contamination.

A1. Definition of Risk

CLR11 defines risk as "a combination of probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurrence".

A2. The Concept of the 'Pollutant Linkage'

In the context of contaminated land, there are three essential elements to any risk:

- a **contaminant (or source)** – a substance that is in, on or under land and has the potential to cause harm or cause pollution of controlled waters.
- a **receptor** - humans, ecological system, water body or property.
- a **pathway** – a route or means by which a receptor can be exposed to, or affected by, a contaminant.

Each of these elements can exist separately; however, they create a risk only where they are linked together forming a **pollutant linkage**.

A3. Conceptual Site Models

A conceptual site model represents the characteristics of the site in diagrammatic or written form that shows the possible relationships between contaminants, pathways and receptors (pollutant linkages).

For all potential pollutant linkages identified, the *consequence* and *probability* of occurrence is qualitatively assessed, and a *risk* assigned.

A4. The Tiered Risk Assessment Approach

CLR11 presents a tiered approach to risk:

Tier 1 *Preliminary risk assessment (PRA)*

The purpose of the preliminary risk assessment is to develop an initial conceptual model of the site and to establish whether or not there are potentially unacceptable risks. If potential risks are identified the initial conceptual model is developed in subsequent tiers of the risk assessment process.

Tier 2 *Generic quantitative risk assessment (GQRA)*

The purpose of the generic quantitative risk assessment is to establish whether generic assessment criteria and assumptions are appropriate for assessing the risks and, if so, to apply them to establish whether there are actual or potential unacceptable risks. It also determines whether further detailed quantitative risk assessment is required.

Tier 3 *Detailed quantitative risk assessment (DQRA)*

The purpose of the detailed quantitative risk assessment is to establish and use more detailed site specific information and criteria to decide whether there are unacceptable risks. It may be used as the sole method of quantitative assessments of risks, or it may be used to refine earlier assessments using generic assessment criteria.

B. RISK ASSESSMENT DEFINITIONS

B1. General

The following classification and definition of risk assessment has been based on that set out in NHBC and EA Publication R&D 66 – Guidance on the Safe Development of Housing on Land Affected by Contamination (2008).

The key to the classification is that the designation of risk is based upon the consideration of both:

- the magnitude of the potential consequence (i.e. severity)**, which considers both the potential severity of the hazard, and the sensitivity of the receptor.
- the magnitude of probability (i.e. likelihood)**, which considers both the presence of the hazard, the receptor, and the integrity of the pathway.

B2. Classification of Consequence

Classification	Definition	Examples
Severe	Highly elevated concentrations likely to result in “significant harm” to human health as defined by the EPA 1990, Part 2A, if exposure occurs. Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population. Catastrophic damage to crops, buildings or property.	Significant harm to humans is defined in circular 01/2006 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. Major fish kill in surface water from large spillage of contaminants from site. Highly elevated concentrations of List I and II substances present in groundwater close to small potable abstraction (high sensitivity). Explosion, causing building collapse (can also equate to immediate human health risk if buildings are occupied).
Medium	Elevated concentrations which could result in “significant harm” to human health as defined by the EPA 1990, Part 2A if exposure occurs. Equivalent to EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce. Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.	Significant harm to humans is defined in circular 01/2006 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. Damage to building rendering it unsafe to occupy e.g. foundation damage resulting in instability. Ingress of contaminants through plastic potable water pipes.
Mild	Exposure to human health unlikely to lead to “significant harm”. Equivalent to EA Category 3 pollution incident including minimal or short lived effect on water quality; marginal effect on amenity value, agriculture or commerce. Minor or short lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long-term maintenance of the population. Minor damage to crops, buildings or property.	Exposure could lead to slight short-term effects (e.g. mild skin rash). Surface spalling of concrete.
Minor	No measurable effect on humans. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures and services.	The loss of plants in a landscaping scheme. Discoloration of concrete.

* For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned.

B3. Classification of Probability

Only applies if there is a possibility of a pollutant linkage being present.

Classification	Definition	Examples
High likelihood	There is pollutant linkage and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.	a) Elevated concentrations of toxic contaminants are present in soils in the top 0.5m in a residential garden. b) Ground/groundwater contamination could be present from chemical works, containing a number of USTs, having been in operation on the same site for over 50
Likely	There is pollutant linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.	a) Elevated concentrations of toxic contaminants are present in soils at depths of 0.5-1.0m in a residential garden, or the top 0.5m in public open space. b) Ground/groundwater contamination could be present from an industrial site containing a UST present between 1970 and 1990. The tank is known to be single skin. There is no evidence of leakage although there are no records of integrity tests.
Low likelihood	There is pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place and is less likely in the shorter term.	a) Elevated concentrations of toxic contaminants are present in soils at depths >1m in a residential garden, or 0.5-1.0m in public open space. b) Ground/groundwater contamination could be present on a light industrial unit constructed in the 1990s containing a UST in operation over the last 10 years – the tank is double skinned but there is no integrity testing or evidence of leakage.
Unlikely	There is pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.	a) Elevated concentrations of toxic contaminants are present below hard standing. b) Light industrial unit <10 yrs. old containing a double-skinned UST with annual integrity testing results available.

Note: A pollution linkage must first be established before probability is classified. If there is no pollution linkage, then there is no potential risk. If there is no pollution linkage, then there is no need to apply tests for probability and consequence.

For example, if there is surface contamination and a major aquifer is present at depth, but this major aquifer is overlain by an aquiclude of significant thickness then there is no pollution linkage and the risks to the major aquifer are not assessed. The report should identify both the source and the receptor but state that because there is no linkage there are no potential risks.

B4. The Classification of Risk

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

B5. Description of the Classified Risks

Very high risk

There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without remediation action OR there is evidence that severe harm to a designated receptor is already occurring. Realisation of that risk is likely to present a substantial liability to be site owner/or occupier. Investigation is required as a matter of urgency and remediation works likely to follow in the short-term.

High risk

Harm is likely to arise to a designated receptor from an identified hazard at the site without remediation action. Realisation of the risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remediation works may be necessary in the short-term and are likely over the longer term.

Moderate risk

It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild. Further investigative work is normally required to clarify the risk and to determine the potential liability to site owner/occupier. Some remediation works may be required in the longer term.

Low risk

It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst, that this harm if realised would normally be mild. It is unlikely that the site owner/or occupier would face substantial liabilities from such a risk. Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remediation works are likely to be relatively limited.

Very low risk

It is a low possibility that harm could arise to a designated receptor, but it is likely at worst, that this harm if realised would normally be mild or minor.

No potential risk

There is no potential risk if no pollution linkage has been established.

B6. Definitions

Term	Definition
Hazard	A property or situation which in certain circumstances could lead to harm. The properties of different hazards must be assessed in relation to their potential to affect the various receptors.
Risk	A combination of the probability or frequency of the occurrences of a defined hazard AND the magnitude of the consequences of that occurrence.
Probability	The mathematical expression of the chance of a particular event in a given period of time [e.g. probability of 0.2 is equivalent to 20% or a 1 in 5 chance].
Impact	The adverse effects (or harm) arising from a defined hazard which impairs the quality of the environment or human health in the short or longer term.
Pollution linkage	An identified pathway is capable of exposing a receptor to a contaminant and that contaminant is capable of harming the receptor.

APPENDIX F – HAZ WASTE CLASSIFICATION ASSESSMENT

Waste Classification Report



VPEVC-EXMAD-74QXN

Job name

Abbey School Neath

Description/Comments

Project

Site

Related Documents

#	Name	Description
None		

Waste Stream Template

General Brownfield Redevelopment Site

Classified by

Name:
Philip Webber
Date:
20 Nov 2019 10:19 GMT
Telephone:
01752 274986

Company:
Jubb Consulting Engineers Ltd
Unit 1 Ensign House
Parkway Court
Marsh Mills
PL6 8LR

Report

Created by: Philip Webber
Created date: 20 Nov 2019 10:19 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	SA101	0.5	Non Hazardous		3
2	SA104	1	Non Hazardous		5
3	SA104[2]	1.5	Non Hazardous		7
4	TP101	0.3	Non Hazardous		9
5	TP104	0.3	Non Hazardous		11
6	TP107	0.5	Non Hazardous		13
7	TP108	0.1	Non Hazardous		15
8	TP111	0.5	Non Hazardous		17
9	TP111[2]	1	Non Hazardous		19
10	TP113	0.3	Non Hazardous		21
11	TP114	0.3	Non Hazardous		23
12	TP115	0.5	Non Hazardous		25



#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
13	TP116	0.5	Non Hazardous		27
14	TP117	0.5	Hazardous	HP 3(i), HP 7, HP 11	29
15	TP119		Non Hazardous		32
16	TP120	0.4	Non Hazardous		34
17	TP121	0.3	Hazardous	HP 7, HP 14	36
18	TP121[2]	0.5	Non Hazardous		39
19	TP122	0.1	Non Hazardous		41
20	WS101	0.5	Non Hazardous		43
21	WS102		Non Hazardous		45
22	WS102[2]	0.7	Non Hazardous		47
23	WS103	0.6	Non Hazardous		49
24	WS105	0.5	Non Hazardous		51
25	WS106	0.5	Non Hazardous		53
26	WS109	0.7	Non Hazardous		55
27	WS110	0.5	Non Hazardous		57
28	WS111	1	Non Hazardous		59
29	WS1	0.4	Non Hazardous		61
30	WS4	0.2	Non Hazardous		63
31	WS5	0.3	Hazardous	HP 7, HP 14	65
32	WS8	0.5	Non Hazardous		67
33	WS9	0.3	Non Hazardous		69
34	Crushed Concrete		Non Hazardous		71

Appendices	Page
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Appendix B: Rationale for selection of metal species	74
Appendix C: Version	74

Classification of sample: SA101

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
SA101	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.5 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				95 mg/kg	1.32	125.431 mg/kg	0.0125 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	2.9 mg/kg	1.285	3.727 mg/kg	0.00029 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	96 mg/kg	1.56	149.742 mg/kg	0.0096 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.28 mg/kg	1.353	0.379 mg/kg	0.0000379 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				320 mg/kg	1.126	360.284 mg/kg	0.036 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				33 mg/kg	1.579	52.123 mg/kg	0.00521 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
	034-002-00-8									
10	zinc { zinc chromate }				320 mg/kg	2.774	887.727 mg/kg	0.0888 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				0.5 mg/kg		0.5 mg/kg	0.00005 %			
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				0.34 mg/kg		0.34 mg/kg	0.000034 %			
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.157 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
-  Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: SA104

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
SA104	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				19 mg/kg	1.32	25.086 mg/kg	0.00251 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.19 mg/kg	1.285	0.244 mg/kg	0.000019 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				9.9 mg/kg	1.462	14.469 mg/kg	0.00145 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.6 mg/kg	1.923	<1.154 mg/kg	<0.000115 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	14 mg/kg	1.56	21.837 mg/kg	0.0014 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				26 mg/kg	1.126	29.273 mg/kg	0.00293 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				22 mg/kg	1.579	34.749 mg/kg	0.00347 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %		
	034-002-00-8									
10	zinc { zinc chromate }				63 mg/kg	2.774	174.771 mg/kg	0.0175 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.031 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
-  Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: SA104[2]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	SA104[2]	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	1.5 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3					
2	cadmium { cadmium sulfide }							
	048-010-00-4	215-147-8	1306-23-6					
3	chromium in chromium(III) compounds { chromium(III) oxide }							
		215-160-9	1308-38-9					
4	chromium in chromium(VI) compounds { chromium(VI) oxide }							
	024-001-00-0	215-607-8	1333-82-0					
5	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6					
6	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7					
7	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1					
8	nickel { nickel dihydroxide }							
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]					
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }							
	034-002-00-8							
10	zinc { zinc chromate }							
	024-007-00-3							
11	acenaphthene							
		201-469-6	83-32-9					
12	acenaphthylene							
		205-917-1	208-96-8					
13	anthracene							
		204-371-1	120-12-7					
14	benzo[a]pyrene; benzo[def]chrysene							
	601-032-00-3	200-028-5	50-32-8					

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0298 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP101

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP101	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.3 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				17 mg/kg	1.32	22.446 mg/kg	0.00224 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.29 mg/kg	1.285	0.373 mg/kg	0.000029 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				12 mg/kg	1.462	17.539 mg/kg	0.00175 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.8 mg/kg	1.923	<1.538 mg/kg	<0.000154 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	52 mg/kg	1.56	81.11 mg/kg	0.0052 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				18 mg/kg	1.126	20.266 mg/kg	0.00203 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				30 mg/kg	1.579	47.385 mg/kg	0.00474 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.23 mg/kg	2.554	0.587 mg/kg	0.0000587 %		
	034-002-00-8									
10	zinc { zinc chromate }				160 mg/kg	2.774	443.863 mg/kg	0.0444 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0622 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP104

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP104	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.3 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				15 mg/kg	1.32	19.805 mg/kg	0.00198 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.19 mg/kg	1.285	0.244 mg/kg	0.000019 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				11 mg/kg	1.462	16.077 mg/kg	0.00161 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.9 mg/kg	1.923	<1.731 mg/kg	<0.000173 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	14 mg/kg	1.56	21.837 mg/kg	0.0014 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				20 mg/kg	1.126	22.518 mg/kg	0.00225 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				24 mg/kg	1.579	37.908 mg/kg	0.00379 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.26 mg/kg	2.554	0.664 mg/kg	0.0000664 %		
	034-002-00-8									
10	zinc { zinc chromate }				70 mg/kg	2.774	194.19 mg/kg	0.0194 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0323 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP107

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP107	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.5 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

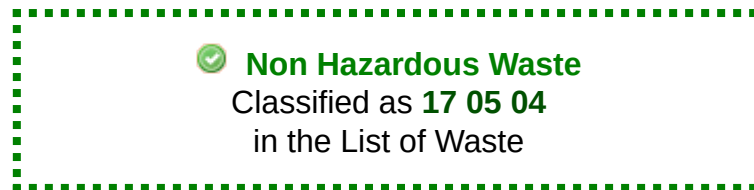
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				25 mg/kg	1.32	33.008 mg/kg	0.0033 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.2 mg/kg	1.285	0.257 mg/kg	0.00002 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				10 mg/kg	1.462	14.616 mg/kg	0.00146 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.1 mg/kg	1.923	<0.192 mg/kg	<0.0000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	21 mg/kg	1.56	32.756 mg/kg	0.0021 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				35 mg/kg	1.126	39.406 mg/kg	0.00394 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				16 mg/kg	1.579	25.272 mg/kg	0.00253 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.59 mg/kg	2.554	1.507 mg/kg	0.000151 %		
	034-002-00-8									
10	zinc { zinc chromate }				52 mg/kg	2.774	144.256 mg/kg	0.0144 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.0295 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
-  Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP108



Sample details

Sample Name:	TP108	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.1 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				50 mg/kg	1.32	66.016	mg/kg	0.0066 %		
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium sulfide }			1	1.2 mg/kg	1.285	1.542	mg/kg	0.00012 %		
	048-010-00-4	215-147-8	1306-23-6								
3	chromium in chromium(III) compounds { chromium(III) oxide }				10 mg/kg	1.462	14.616	mg/kg	0.00146 %		
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.11 mg/kg	1.923	<0.212	mg/kg	<0.0000212 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	lead { lead chromate }			1	53 mg/kg	1.56	82.67	mg/kg	0.0053 %		
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury dichloride }				0.11 mg/kg	1.353	0.149	mg/kg	0.0000149 %		
	080-010-00-X	231-299-8	7487-94-7								
7	copper { dicopper oxide; copper (I) oxide }				84 mg/kg	1.126	94.575	mg/kg	0.00946 %		
	029-002-00-X	215-270-7	1317-39-1								
8	nickel { nickel dihydroxide }				18 mg/kg	1.579	28.431	mg/kg	0.00284 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.58 mg/kg	2.554	1.481	mg/kg	0.000148 %		
	034-002-00-8										
10	zinc { zinc chromate }				140 mg/kg	2.774	388.381	mg/kg	0.0388 %		
	024-007-00-3										
11	acenaphthene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9								
12	acenaphthylene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8								
13	anthracene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7								
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				0.21 mg/kg		0.21 mg/kg	0.000021 %			
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				0.2 mg/kg		0.2 mg/kg	0.00002 %			
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0664 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP111

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
TP111	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.5 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				30 mg/kg	1.32	39.61 mg/kg	0.00396 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium sulfide }			1	0.81 mg/kg	1.285	1.041 mg/kg	0.000081 %			
	048-010-00-4	215-147-8	1306-23-6								
3	chromium in chromium(III) compounds { chromium(III) oxide }				12 mg/kg	1.462	17.539 mg/kg	0.00175 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.12 mg/kg	1.923	<0.231 mg/kg	<0.0000231 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	lead { lead chromate }			1	33 mg/kg	1.56	51.474 mg/kg	0.0033 %			
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury dichloride }				0.11 mg/kg	1.353	0.149 mg/kg	0.0000149 %			
	080-010-00-X	231-299-8	7487-94-7								
7	copper { dicopper oxide; copper (I) oxide }				58 mg/kg	1.126	65.302 mg/kg	0.00653 %			
	029-002-00-X	215-270-7	1317-39-1								
8	nickel { nickel dihydroxide }				25 mg/kg	1.579	39.487 mg/kg	0.00395 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.43 mg/kg	2.554	1.098 mg/kg	0.00011 %			
	034-002-00-8										
10	zinc { zinc chromate }				130 mg/kg	2.774	360.639 mg/kg	0.0361 %			
	024-007-00-3										
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.0573 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
-  Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP111[2]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP111[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

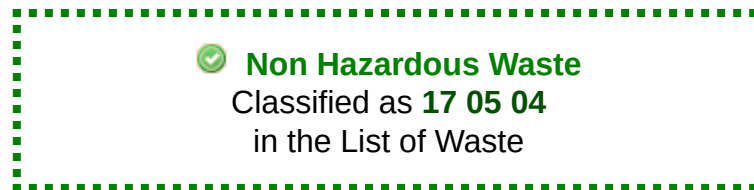
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				13 mg/kg	1.32	17.164 mg/kg	0.00172 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.2 mg/kg	1.285	0.257 mg/kg	0.00002 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				10 mg/kg	1.462	14.616 mg/kg	0.00146 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.13 mg/kg	1.923	<0.25 mg/kg	<0.000025 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	14 mg/kg	1.56	21.837 mg/kg	0.0014 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				20 mg/kg	1.126	22.518 mg/kg	0.00225 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				26 mg/kg	1.579	41.067 mg/kg	0.00411 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %		
	034-002-00-8									
10	zinc { zinc chromate }				71 mg/kg	2.774	196.964 mg/kg	0.0197 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0323 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP113



Sample details

Sample Name:	TP113	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.3 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	33 mg/kg	1.32	43.571 mg/kg	0.00436 %		
2	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	0.86 mg/kg	1.285	1.105 mg/kg	0.000086 %		
3	chromium in chromium(III) compounds { chromium(III) oxide }	215-160-9	1308-38-9		12 mg/kg	1.462	17.539 mg/kg	0.00175 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.14 mg/kg	1.923	<0.269 mg/kg	<0.0000269 %		<LOD
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	54 mg/kg	1.56	84.23 mg/kg	0.0054 %		
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	0.6 mg/kg	1.353	0.812 mg/kg	0.0000812 %		
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	42 mg/kg	1.126	47.287 mg/kg	0.00473 %		
8	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]	17 mg/kg	1.579	26.851 mg/kg	0.00269 %		
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %		
10	zinc { zinc chromate }	024-007-00-3			170 mg/kg	2.774	471.605 mg/kg	0.0472 %		
11	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
12	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
13	anthracene	204-371-1	120-12-7		0.26 mg/kg		0.26 mg/kg	0.000026 %		
14	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	1.2 mg/kg		1.2 mg/kg	0.00012 %		

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
15	benzo[b]fluoranthene				2.5	mg/kg		2.5	mg/kg	0.00025 %		
	601-034-00-4	205-911-9	205-99-2									
16	benzo[ghi]perylene				1.4	mg/kg		1.4	mg/kg	0.00014 %		
		205-883-8	191-24-2									
17	benzo[k]fluoranthene				0.68	mg/kg		0.68	mg/kg	0.000068 %		
	601-036-00-5	205-916-6	207-08-9									
18	chrysene				1.8	mg/kg		1.8	mg/kg	0.00018 %		
	601-048-00-0	205-923-4	218-01-9									
19	dibenz[a,h]anthracene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
	601-041-00-2	200-181-8	53-70-3									
20	fluoranthene				1.7	mg/kg		1.7	mg/kg	0.00017 %		
		205-912-4	206-44-0									
21	fluorene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
		201-695-5	86-73-7									
22	indeno[123-cd]pyrene				0.99	mg/kg		0.99	mg/kg	0.000099 %		
		205-893-2	193-39-5									
23	naphthalene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
	601-052-00-2	202-049-5	91-20-3									
24	phenanthrene				0.91	mg/kg		0.91	mg/kg	0.000091 %		
		201-581-5	85-01-8									
25	pyrene				1.7	mg/kg		1.7	mg/kg	0.00017 %		
		204-927-3	129-00-0									
26	benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
27	ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
28	toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
29	xylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
30	TPH (C6 to C40) petroleum group				98	mg/kg		98	mg/kg	0.0098 %		
			TPH									
Total:										0.0779 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because Unlikely to be flammable

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0098%)

Classification of sample: TP114

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP114	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.3 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

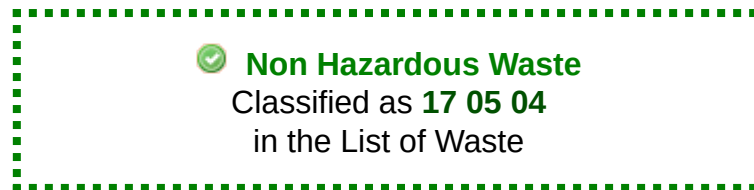
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				48 mg/kg	1.32	63.376 mg/kg	0.00634 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium sulfide }			1	0.51 mg/kg	1.285	0.655 mg/kg	0.000051 %			
	048-010-00-4	215-147-8	1306-23-6								
3	chromium in chromium(III) compounds { chromium(III) oxide }				12 mg/kg	1.462	17.539 mg/kg	0.00175 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.15 mg/kg	1.923	<0.288 mg/kg	<0.0000288 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	lead { lead chromate }			1	57 mg/kg	1.56	88.909 mg/kg	0.0057 %			
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury dichloride }				0.14 mg/kg	1.353	0.189 mg/kg	0.0000189 %			
	080-010-00-X	231-299-8	7487-94-7								
7	copper { dicopper oxide; copper (I) oxide }				150 mg/kg	1.126	168.883 mg/kg	0.0169 %			
	029-002-00-X	215-270-7	1317-39-1								
8	nickel { nickel dihydroxide }				20 mg/kg	1.579	31.59 mg/kg	0.00316 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %			
	034-002-00-8										
10	zinc { zinc chromate }				190 mg/kg	2.774	527.088 mg/kg	0.0527 %			
	024-007-00-3										
11	acenaphthene				0.5 mg/kg		0.5 mg/kg	0.00005 %			
		201-469-6	83-32-9								
12	acenaphthylene				0.13 mg/kg		0.13 mg/kg	0.000013 %			
		205-917-1	208-96-8								
13	anthracene				1.4 mg/kg		1.4 mg/kg	0.00014 %			
		204-371-1	120-12-7								
14	benzo[a]pyrene; benzo[def]chrysene				3.5 mg/kg		3.5 mg/kg	0.00035 %			
	601-032-00-3	200-028-5	50-32-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				5.3 mg/kg		5.3 mg/kg	0.00053 %			
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				2.6 mg/kg		2.6 mg/kg	0.00026 %			
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				2.1 mg/kg		2.1 mg/kg	0.00021 %			
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				6.1 mg/kg		6.1 mg/kg	0.00061 %			
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				1 mg/kg		1 mg/kg	0.0001 %			
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				8.9 mg/kg		8.9 mg/kg	0.00089 %			
		205-912-4	206-44-0								
21	fluorene				0.66 mg/kg		0.66 mg/kg	0.000066 %			
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				2.7 mg/kg		2.7 mg/kg	0.00027 %			
		205-893-2	193-39-5								
23	naphthalene				0.39 mg/kg		0.39 mg/kg	0.000039 %			
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				5.5 mg/kg		5.5 mg/kg	0.00055 %			
		201-581-5	85-01-8								
25	pyrene				7.1 mg/kg		7.1 mg/kg	0.00071 %			
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0929 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP115



Sample details

Sample Name:	TP115	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3					
2	cadmium { cadmium sulfide }							
	048-010-00-4	215-147-8	1306-23-6					
3	chromium in chromium(III) compounds { chromium(III) oxide }							
		215-160-9	1308-38-9					
4	chromium in chromium(VI) compounds { chromium(VI) oxide }							
	024-001-00-0	215-607-8	1333-82-0					
5	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6					
6	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7					
7	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1					
8	nickel { nickel dihydroxide }							
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]					
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }							
	034-002-00-8							
10	zinc { zinc chromate }							
	024-007-00-3							
11	acenaphthene							
		201-469-6	83-32-9					
12	acenaphthylene							
		205-917-1	208-96-8					
13	anthracene							
		204-371-1	120-12-7					
14	benzo[a]pyrene; benzo[def]chrysene							
	601-032-00-3	200-028-5	50-32-8					

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				1.4 mg/kg		1.4 mg/kg	0.00014 %		
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				0.47 mg/kg		0.47 mg/kg	0.000047 %		
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				0.39 mg/kg		0.39 mg/kg	0.000039 %		
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				1.6 mg/kg		1.6 mg/kg	0.00016 %		
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				0.1 mg/kg		0.1 mg/kg	0.00001 %		
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				1.7 mg/kg		1.7 mg/kg	0.00017 %		
		205-912-4	206-44-0							
21	fluorene				0.1 mg/kg		0.1 mg/kg	0.00001 %		
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				0.53 mg/kg		0.53 mg/kg	0.000053 %		
		205-893-2	193-39-5							
23	naphthalene				0.1 mg/kg		0.1 mg/kg	0.00001 %		
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				0.92 mg/kg		0.92 mg/kg	0.000092 %		
		201-581-5	85-01-8							
25	pyrene				1.5 mg/kg		1.5 mg/kg	0.00015 %		
		204-927-3	129-00-0							
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.0423 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
-  Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP116

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	TP116	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.5 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

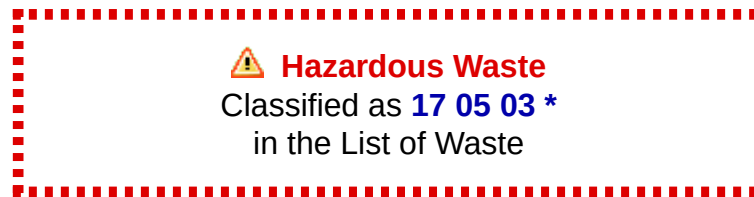
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	9.9 mg/kg	1.32	13.071 mg/kg	0.00131 %			
2	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	0.15 mg/kg	1.285	0.193 mg/kg	0.000015 %			
3	chromium in chromium(III) compounds { chromium(III) oxide }	215-160-9	1308-38-9		10 mg/kg	1.462	14.616 mg/kg	0.00146 %			
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.17 mg/kg	1.923	<0.327 mg/kg	<0.0000327 %			<LOD
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	13 mg/kg	1.56	20.278 mg/kg	0.0013 %			
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %			
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	17 mg/kg	1.126	19.14 mg/kg	0.00191 %			
8	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]	26 mg/kg	1.579	41.067 mg/kg	0.00411 %			
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %			
10	zinc { zinc chromate }	024-007-00-3			73 mg/kg	2.774	202.513 mg/kg	0.0203 %			
11	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
12	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
13	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
14	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.032 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP117



Sample details

Sample Name:	LoW Code:	
TP117	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 03 * (Soil and stones containing hazardous substances)
0.5 m		

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.22%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.22%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.22%)

Determinands

Moisture content: **0% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				18 mg/kg	1.32	23.766 mg/kg	0.00238 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.35 mg/kg	1.285	0.45 mg/kg	0.000035 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				13 mg/kg	1.462	19 mg/kg	0.0019 %		
		215-160-9	1308-38-9							

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.18 mg/kg	1.923	<0.346 mg/kg	<0.0000346 %			<LOD
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	31 mg/kg	1.56	48.354 mg/kg	0.0031 %			
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %			
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		8.2 mg/kg	1.126	9.232 mg/kg	0.000923 %			
8	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		17 mg/kg	1.579	26.851 mg/kg	0.00269 %			
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %			
10	zinc { zinc chromate }	024-007-00-3				170 mg/kg	2.774	471.605 mg/kg	0.0472 %			
11	acenaphthene	201-469-6	83-32-9			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
12	acenaphthylene	205-917-1	208-96-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
13	anthracene	204-371-1	120-12-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
14	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
15	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.68 mg/kg		0.68 mg/kg	0.000068 %			
16	benzo[ghi]perylene	205-883-8	191-24-2			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
17	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
18	chrysene	601-048-00-0	205-923-4	218-01-9		0.54 mg/kg		0.54 mg/kg	0.000054 %			
19	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
20	fluoranthene	205-912-4	206-44-0			0.37 mg/kg		0.37 mg/kg	0.000037 %			
21	fluorene	201-695-5	86-73-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
22	indeno[123-cd]pyrene	205-893-2	193-39-5			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
23	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	phenanthrene	201-581-5	85-01-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
25	pyrene	204-927-3	129-00-0			0.63 mg/kg		0.63 mg/kg	0.000063 %			
26	benzene	601-020-00-8	200-753-7	71-43-2		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
27	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
28	toluene	601-021-00-3	203-625-9	108-88-3		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
29	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
30	TPH (C6 to C40) petroleum group		TPH			2200 mg/kg		2200 mg/kg	0.22 %			



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
Total:								0.279 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP119

 **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
TP119	Chapter:
	Entry:
	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	22 mg/kg	1.32	29.047 mg/kg	0.0029 %			
2	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	0.1 mg/kg	1.285	0.129 mg/kg	0.00001 %			
3	chromium in chromium(III) compounds { chromium(III) oxide }	215-160-9	1308-38-9		13 mg/kg	1.462	19 mg/kg	0.0019 %			
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.19 mg/kg	1.923	<0.365 mg/kg	<0.0000365 %			<LOD
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	6.4 mg/kg	1.56	9.983 mg/kg	0.00064 %			
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %			
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	8.2 mg/kg	1.126	9.232 mg/kg	0.000923 %			
8	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]	22 mg/kg	1.579	34.749 mg/kg	0.00347 %			
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %			
10	zinc { zinc chromate }	024-007-00-3			43 mg/kg	2.774	119.288 mg/kg	0.0119 %			
11	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
12	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
13	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
14	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.0234 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP120



Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	TP120	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.4 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

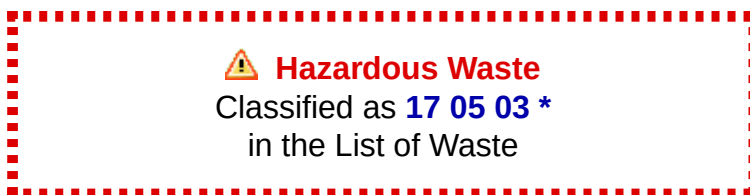
#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		17 mg/kg	1.32	22.446 mg/kg	0.00224 %		
2	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	0.32 mg/kg	1.285	0.411 mg/kg	0.000032 %		
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		11 mg/kg	1.462	16.077 mg/kg	0.00161 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.2 mg/kg	1.923	<0.385 mg/kg	<0.0000385 %		<LOD
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	24 mg/kg	1.56	37.436 mg/kg	0.0024 %		
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.64 mg/kg	1.353	0.866 mg/kg	0.0000866 %		
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		9.5 mg/kg	1.126	10.696 mg/kg	0.00107 %		
8	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		14 mg/kg	1.579	22.113 mg/kg	0.00221 %		
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %		
10	zinc { zinc chromate }	024-007-00-3				100 mg/kg	2.774	277.415 mg/kg	0.0277 %		
11	acenaphthene		201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
12	acenaphthylene		205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
13	anthracene		204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
14	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.039 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP121



Sample details

Sample Name:	LoW Code:
TP121	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.3 m	Entry:
	17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

zinc chromate: (compound conc.: 0.305%)

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Hazard Statements hit:

Aquatic Chronic 1; H410 "Very toxic to aquatic life with long lasting effects."

Because of determinand:

zinc chromate: (compound conc.: 0.305%)

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				45	mg/kg	1.32	59.415	mg/kg	0.00594 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium sulfide }			1	3	mg/kg	1.285	3.856	mg/kg	0.0003 %		
	048-010-00-4	215-147-8	1306-23-6									
3	chromium in chromium(III) compounds { chromium(III) oxide }				15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.21	mg/kg	1.923	<0.404	mg/kg	<0.0000404 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	lead { lead chromate }			1	400	mg/kg	1.56	623.926	mg/kg	0.04 %		
	082-004-00-2	231-846-0	7758-97-6									
6	mercury { mercury dichloride }				0.37	mg/kg	1.353	0.501	mg/kg	0.0000501 %		
	080-010-00-X	231-299-8	7487-94-7									
7	copper { dicopper oxide; copper (I) oxide }				52	mg/kg	1.126	58.546	mg/kg	0.00585 %		
	029-002-00-X	215-270-7	1317-39-1									
8	nickel { nickel dihydroxide }				22	mg/kg	1.579	34.749	mg/kg	0.00347 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.2	mg/kg	2.554	0.511	mg/kg	0.0000511 %		
	034-002-00-8											
10	zinc { zinc chromate }				1100	mg/kg	2.774	3051.561	mg/kg	0.305 %		
	024-007-00-3											
11	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
12	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
13	anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7									
14	benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
15	benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
16	benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2									
17	benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
18	chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
19	dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
20	fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0									
21	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
22	indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5									
23	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
24	phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8									
25	pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0									
26	benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
27	ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
28	toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
29	xylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
30	TPH (C6 to C40) petroleum group				540	mg/kg		540	mg/kg	0.054 %		
			TPH									
Total:										0.418 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because Unlikely to be flammable

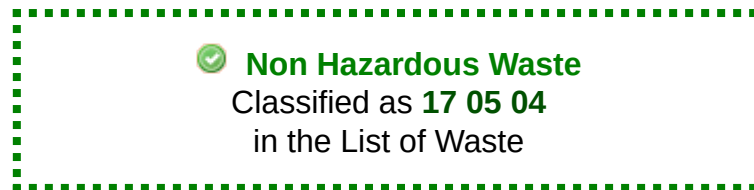
Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.054%)

Classification of sample: TP121[2]



Sample details

Sample Name:	LoW Code:	
TP121[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.5 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				27 mg/kg	1.32	35.649 mg/kg	0.00356 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium sulfide }			1	0.94 mg/kg	1.285	1.208 mg/kg	0.000094 %			
	048-010-00-4	215-147-8	1306-23-6								
3	chromium in chromium(III) compounds { chromium(III) oxide }				9.9 mg/kg	1.462	14.469 mg/kg	0.00145 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.22 mg/kg	1.923	<0.423 mg/kg	<0.0000423 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	lead { lead chromate }			1	46 mg/kg	1.56	71.751 mg/kg	0.0046 %			
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury dichloride }				0.19 mg/kg	1.353	0.257 mg/kg	0.0000257 %			
	080-010-00-X	231-299-8	7487-94-7								
7	copper { dicopper oxide; copper (I) oxide }				51 mg/kg	1.126	57.42 mg/kg	0.00574 %			
	029-002-00-X	215-270-7	1317-39-1								
8	nickel { nickel dihydroxide }				13 mg/kg	1.579	20.533 mg/kg	0.00205 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.31 mg/kg	2.554	0.792 mg/kg	0.0000792 %			
	034-002-00-8										
10	zinc { zinc chromate }				170 mg/kg	2.774	471.605 mg/kg	0.0472 %			
	024-007-00-3										
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.0664 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP122

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP122	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.1 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				22 mg/kg	1.32	29.047 mg/kg	0.0029 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.87 mg/kg	1.285	1.118 mg/kg	0.000087 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				14 mg/kg	1.462	20.462 mg/kg	0.00205 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.23 mg/kg	1.923	<0.442 mg/kg	<0.0000442 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	37 mg/kg	1.56	57.713 mg/kg	0.0037 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.2 mg/kg	1.353	0.271 mg/kg	0.0000271 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				41 mg/kg	1.126	46.161 mg/kg	0.00462 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				35 mg/kg	1.579	55.282 mg/kg	0.00553 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.33 mg/kg	2.554	0.843 mg/kg	0.0000843 %		
	034-002-00-8									
10	zinc { zinc chromate }				120 mg/kg	2.774	332.898 mg/kg	0.0333 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				0.56 mg/kg		0.56 mg/kg	0.000056 %			
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				0.72 mg/kg		0.72 mg/kg	0.000072 %			
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.054 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
-  Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS101

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS101	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.5 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				21 mg/kg	1.32	27.727 mg/kg	0.00277 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.61 mg/kg	1.285	0.784 mg/kg	0.000061 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				12 mg/kg	1.462	17.539 mg/kg	0.00175 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.24 mg/kg	1.923	<0.462 mg/kg	<0.0000462 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	26 mg/kg	1.56	40.555 mg/kg	0.0026 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				14 mg/kg	1.126	15.762 mg/kg	0.00158 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				15 mg/kg	1.579	23.692 mg/kg	0.00237 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %		
	034-002-00-8									
10	zinc { zinc chromate }				130 mg/kg	2.774	360.639 mg/kg	0.0361 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		0.77 mg/kg		0.77 mg/kg	0.000077 %		
16	benzo[ghi]perylene 205-883-8	191-24-2			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	chrysene 601-048-00-0	205-923-4	218-01-9		0.27 mg/kg		0.27 mg/kg	0.000027 %		
19	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	fluoranthene 205-912-4	206-44-0			0.78 mg/kg		0.78 mg/kg	0.000078 %		
21	fluorene 201-695-5	86-73-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	indeno[123-cd]pyrene 205-893-2	193-39-5			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	phenanthrene 201-581-5	85-01-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	pyrene 204-927-3	129-00-0			0.96 mg/kg		0.96 mg/kg	0.000096 %		
26	benzene 601-020-00-8	200-753-7	71-43-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
27	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
28	toluene 601-021-00-3	203-625-9	108-88-3		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
29	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
30	TPH (C6 to C40) petroleum group TPH				560 mg/kg		560 mg/kg	0.056 %		
Total:								0.104 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because Unlikely to be flammable

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.056%)

Classification of sample: WS102

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS102	Chapter:
	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				21 mg/kg	1.32	27.727 mg/kg	0.00277 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium sulfide }			1	0.27 mg/kg	1.285	0.347 mg/kg	0.000027 %			
	048-010-00-4	215-147-8	1306-23-6								
3	chromium in chromium(III) compounds { chromium(III) oxide }				13 mg/kg	1.462	19 mg/kg	0.0019 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.25 mg/kg	1.923	<0.481 mg/kg	<0.0000481 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	lead { lead chromate }			1	16 mg/kg	1.56	24.957 mg/kg	0.0016 %			
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %			
	080-010-00-X	231-299-8	7487-94-7								
7	copper { dicopper oxide; copper (I) oxide }				9.1 mg/kg	1.126	10.246 mg/kg	0.00102 %			
	029-002-00-X	215-270-7	1317-39-1								
8	nickel { nickel dihydroxide }				15 mg/kg	1.579	23.692 mg/kg	0.00237 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %			
	034-002-00-8										
10	zinc { zinc chromate }				84 mg/kg	2.774	233.028 mg/kg	0.0233 %			
	024-007-00-3										
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.0347 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
-  Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS102[2]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
WS102[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.7 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				61 mg/kg	1.32	80.54 mg/kg	0.00805 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium sulfide }			1	0.91 mg/kg	1.285	1.17 mg/kg	0.000091 %			
	048-010-00-4	215-147-8	1306-23-6								
3	chromium in chromium(III) compounds { chromium(III) oxide }				11 mg/kg	1.462	16.077 mg/kg	0.00161 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.26 mg/kg	1.923	<0.5 mg/kg	<0.00005 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	lead { lead chromate }			1	40 mg/kg	1.56	62.393 mg/kg	0.004 %			
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %			
	080-010-00-X	231-299-8	7487-94-7								
7	copper { dicopper oxide; copper (I) oxide }				70 mg/kg	1.126	78.812 mg/kg	0.00788 %			
	029-002-00-X	215-270-7	1317-39-1								
8	nickel { nickel dihydroxide }				11 mg/kg	1.579	17.374 mg/kg	0.00174 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.51 mg/kg	2.554	1.302 mg/kg	0.00013 %			
	034-002-00-8										
10	zinc { zinc chromate }				90 mg/kg	2.774	249.673 mg/kg	0.025 %			
	024-007-00-3										
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.0501 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS103

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS103	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.6 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				35 mg/kg	1.32	46.211 mg/kg	0.00462 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium sulfide }			1	0.87 mg/kg	1.285	1.118 mg/kg	0.000087 %			
	048-010-00-4	215-147-8	1306-23-6								
3	chromium in chromium(III) compounds { chromium(III) oxide }				14 mg/kg	1.462	20.462 mg/kg	0.00205 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.27 mg/kg	1.923	<0.519 mg/kg	<0.0000519 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	lead { lead chromate }			1	35 mg/kg	1.56	54.594 mg/kg	0.0035 %			
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %			
	080-010-00-X	231-299-8	7487-94-7								
7	copper { dicopper oxide; copper (I) oxide }				58 mg/kg	1.126	65.302 mg/kg	0.00653 %			
	029-002-00-X	215-270-7	1317-39-1								
8	nickel { nickel dihydroxide }				18 mg/kg	1.579	28.431 mg/kg	0.00284 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.58 mg/kg	2.554	1.481 mg/kg	0.000148 %			
	034-002-00-8										
10	zinc { zinc chromate }				92 mg/kg	2.774	255.221 mg/kg	0.0255 %			
	024-007-00-3										
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0469 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS105

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
WS105	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.5 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				20 mg/kg	1.32	26.407 mg/kg	0.00264 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.51 mg/kg	1.285	0.655 mg/kg	0.000051 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.28 mg/kg	1.923	<0.538 mg/kg	<0.0000538 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	19 mg/kg	1.56	29.636 mg/kg	0.0019 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				34 mg/kg	1.126	38.28 mg/kg	0.00383 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				20 mg/kg	1.579	31.59 mg/kg	0.00316 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.25 mg/kg	2.554	0.638 mg/kg	0.0000638 %		
	034-002-00-8									
10	zinc { zinc chromate }				68 mg/kg	2.774	188.642 mg/kg	0.0189 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.0343 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS106

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
WS106	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.5 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				15 mg/kg	1.32	19.805 mg/kg	0.00198 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.22 mg/kg	1.285	0.283 mg/kg	0.000022 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				12 mg/kg	1.462	17.539 mg/kg	0.00175 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.29 mg/kg	1.923	<0.558 mg/kg	<0.0000558 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	14 mg/kg	1.56	21.837 mg/kg	0.0014 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				20 mg/kg	1.126	22.518 mg/kg	0.00225 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				29 mg/kg	1.579	45.805 mg/kg	0.00458 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.21 mg/kg	2.554	0.536 mg/kg	0.0000536 %		
	034-002-00-8									
10	zinc { zinc chromate }				69 mg/kg	2.774	191.416 mg/kg	0.0191 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0328 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS109

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS109	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.7 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.12 mg/kg	1.285	0.154 mg/kg	0.000012 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				11 mg/kg	1.462	16.077 mg/kg	0.00161 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	13 mg/kg	1.56	20.278 mg/kg	0.0013 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				19 mg/kg	1.126	21.392 mg/kg	0.00214 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				24 mg/kg	1.579	37.908 mg/kg	0.00379 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.2 mg/kg	2.554	0.511 mg/kg	0.0000511 %		
	034-002-00-8									
10	zinc { zinc chromate }				59 mg/kg	2.774	163.675 mg/kg	0.0164 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0285 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
-  Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS110

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS110	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.5 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				76 mg/kg	1.32	100.345 mg/kg	0.01 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	2.3 mg/kg	1.285	2.956 mg/kg	0.00023 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				11 mg/kg	1.462	16.077 mg/kg	0.00161 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.31 mg/kg	1.923	<0.596 mg/kg	<0.0000596 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	66 mg/kg	1.56	102.948 mg/kg	0.0066 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.12 mg/kg	1.353	0.162 mg/kg	0.0000162 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				110 mg/kg	1.126	123.848 mg/kg	0.0124 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				21 mg/kg	1.579	33.169 mg/kg	0.00332 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.69 mg/kg	2.554	1.762 mg/kg	0.000176 %		
	034-002-00-8									
10	zinc { zinc chromate }				160 mg/kg	2.774	443.863 mg/kg	0.0444 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				0.65 mg/kg		0.65 mg/kg	0.000065 %			
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				0.43 mg/kg		0.43 mg/kg	0.000043 %			
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0805 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS111

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
WS111	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

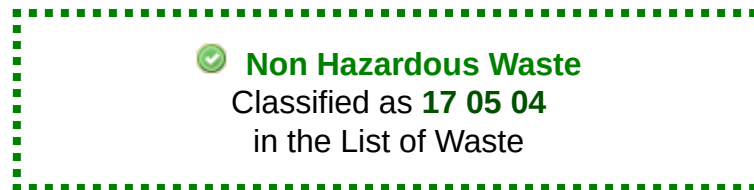
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				14 mg/kg	1.32	18.485 mg/kg	0.00185 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.22 mg/kg	1.285	0.283 mg/kg	0.000022 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				10 mg/kg	1.462	14.616 mg/kg	0.00146 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.32 mg/kg	1.923	<0.615 mg/kg	<0.0000615 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	12 mg/kg	1.56	18.718 mg/kg	0.0012 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				16 mg/kg	1.126	18.014 mg/kg	0.0018 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				21 mg/kg	1.579	33.169 mg/kg	0.00332 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.28 mg/kg	2.554	0.715 mg/kg	0.0000715 %		
	034-002-00-8									
10	zinc { zinc chromate }				59 mg/kg	2.774	163.675 mg/kg	0.0164 %		
	024-007-00-3									
11	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
23	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
25	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
26	benzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
27	ethylbenzene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
28	toluene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
29	xylene				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
Total:									0.0277 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS1



Sample details

Sample Name:	WS1	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.4 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3					
2	cadmium { cadmium sulfide }							
	048-010-00-4	215-147-8	1306-23-6					
3	chromium in chromium(III) compounds { chromium(III) oxide }							
		215-160-9	1308-38-9					
4	chromium in chromium(VI) compounds { chromium(VI) oxide }							
	024-001-00-0	215-607-8	1333-82-0					
5	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6					
6	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7					
7	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1					
8	nickel { nickel dihydroxide }							
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]					
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }							
	034-002-00-8							
10	zinc { zinc chromate }							
	024-007-00-3							
11	acenaphthene							
		201-469-6	83-32-9					
12	acenaphthylene							
		205-917-1	208-96-8					
13	anthracene							
		204-371-1	120-12-7					
14	benzo[a]pyrene; benzo[def]chrysene							
	601-032-00-3	200-028-5	50-32-8					

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	benzo[b]fluoranthene				1.4 mg/kg		1.4 mg/kg	0.00014 %		
	601-034-00-4	205-911-9	205-99-2							
16	benzo[ghi]perylene				0.63 mg/kg		0.63 mg/kg	0.000063 %		
		205-883-8	191-24-2							
17	benzo[k]fluoranthene				0.83 mg/kg		0.83 mg/kg	0.000083 %		
	601-036-00-5	205-916-6	207-08-9							
18	chrysene				2.3 mg/kg		2.3 mg/kg	0.00023 %		
	601-048-00-0	205-923-4	218-01-9							
19	dibenz[a,h]anthracene				0.12 mg/kg		0.12 mg/kg	0.000012 %		
	601-041-00-2	200-181-8	53-70-3							
20	fluoranthene				2.6 mg/kg		2.6 mg/kg	0.00026 %		
		205-912-4	206-44-0							
21	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
22	indeno[123-cd]pyrene				0.51 mg/kg		0.51 mg/kg	0.000051 %		
		205-893-2	193-39-5							
23	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
	601-052-00-2	202-049-5	91-20-3							
24	phenanthrene				1.1 mg/kg		1.1 mg/kg	0.00011 %		
		201-581-5	85-01-8							
25	pyrene				1.8 mg/kg		1.8 mg/kg	0.00018 %		
		204-927-3	129-00-0							
Total:								0.0346 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS4

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS4	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

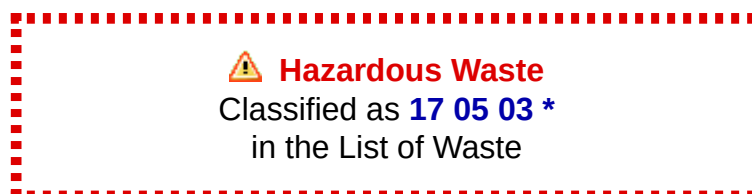
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				18 mg/kg	1.32	23.766 mg/kg	0.00238 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	1.5 mg/kg	1.285	1.928 mg/kg	0.00015 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				10 mg/kg	1.462	14.616 mg/kg	0.00146 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<5 mg/kg	1.923	<9.616 mg/kg	<0.000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	45 mg/kg	1.56	70.192 mg/kg	0.0045 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				180 mg/kg	1.126	202.66 mg/kg	0.0203 %		
	029-002-00-X	215-270-7	1317-39-1							
8	nickel { nickel dihydroxide }				16 mg/kg	1.579	25.272 mg/kg	0.00253 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
9	selenium { selenium compounds with the exception of cadmium sulposelenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
	034-002-00-8									
10	zinc { zinc chromate }				110 mg/kg	2.774	305.156 mg/kg	0.0305 %		
	024-007-00-3									
11	acenaphthene				6.1 mg/kg		6.1 mg/kg	0.00061 %		
		201-469-6	83-32-9							
12	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
13	anthracene				31 mg/kg		31 mg/kg	0.0031 %		
		204-371-1	120-12-7							
14	benzo[a]pyrene; benzo[def]chrysene				93 mg/kg		93 mg/kg	0.0093 %		
	601-032-00-3	200-028-5	50-32-8							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used	
		CLP index number	EC Number	CAS Number										
15		benzo[b]fluoranthene				140	mg/kg		140	mg/kg	0.014 %			
		601-034-00-4	205-911-9	205-99-2										
16	•	benzo[ghi]perylene				49	mg/kg		49	mg/kg	0.0049 %			
			205-883-8	191-24-2										
17		benzo[k]fluoranthene				44	mg/kg		44	mg/kg	0.0044 %			
		601-036-00-5	205-916-6	207-08-9										
18		chrysene				130	mg/kg		130	mg/kg	0.013 %			
		601-048-00-0	205-923-4	218-01-9										
19		dibenz[a,h]anthracene				22	mg/kg		22	mg/kg	0.0022 %			
		601-041-00-2	200-181-8	53-70-3										
20	•	fluoranthene				180	mg/kg		180	mg/kg	0.018 %			
			205-912-4	206-44-0										
21	•	fluorene				13	mg/kg		13	mg/kg	0.0013 %			
			201-695-5	86-73-7										
22	•	indeno[123-cd]pyrene				55	mg/kg		55	mg/kg	0.0055 %			
			205-893-2	193-39-5										
23		naphthalene				0.71	mg/kg		0.71	mg/kg	0.000071 %			
		601-052-00-2	202-049-5	91-20-3										
24	•	phenanthrene				71	mg/kg		71	mg/kg	0.0071 %			
			201-581-5	85-01-8										
25	•	pyrene				130	mg/kg		130	mg/kg	0.013 %			
			204-927-3	129-00-0										
Total:												0.16 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS5



Sample details

Sample Name:	LoW Code:
WS5	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.3 m	Entry:
	17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

zinc chromate: (compound conc.: 0.999%)

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Hazard Statements hit:

Aquatic Chronic 1; H410 "Very toxic to aquatic life with long lasting effects."

Because of determinands:

dicopper oxide; copper (I) oxide: (compound conc.: 0.518%)

zinc chromate: (compound conc.: 0.999%)

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

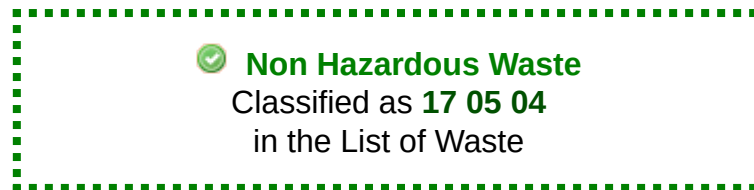
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				270 mg/kg	1.32	356.488 mg/kg	0.0356 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium sulfide }			1	3.9 mg/kg	1.285	5.012 mg/kg	0.00039 %			
	048-010-00-4	215-147-8	1306-23-6								
3	chromium in chromium(III) compounds { chromium(III) oxide }				15 mg/kg	1.462	21.923 mg/kg	0.00219 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<5 mg/kg	1.923	<9.616 mg/kg	<0.000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	lead { lead chromate }			1	690 mg/kg	1.56	1076.272 mg/kg	0.069 %			
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury dichloride }				0.9 mg/kg	1.353	1.218 mg/kg	0.000122 %			
	080-010-00-X	231-299-8	7487-94-7								
7	copper { dicopper oxide; copper (I) oxide }				4600 mg/kg	1.126	5179.086 mg/kg	0.518 %			
	029-002-00-X	215-270-7	1317-39-1								
8	nickel { nickel dihydroxide }				82 mg/kg	1.579	129.519 mg/kg	0.013 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554	mg/kg	0.000255 %		
	034-002-00-8										
10	zinc { zinc chromate }				3600 mg/kg	2.774	9986.928	mg/kg	0.999 %		
	024-007-00-3										
11	acenaphthene				2.1 mg/kg		2.1	mg/kg	0.00021 %		
		201-469-6	83-32-9								
12	acenaphthylene				0.24 mg/kg		0.24	mg/kg	0.000024 %		
		205-917-1	208-96-8								
13	anthracene				6.4 mg/kg		6.4	mg/kg	0.00064 %		
		204-371-1	120-12-7								
14	benzo[a]pyrene; benzo[def]chrysene				20 mg/kg		20	mg/kg	0.002 %		
	601-032-00-3	200-028-5	50-32-8								
15	benzo[b]fluoranthene				25 mg/kg		25	mg/kg	0.0025 %		
	601-034-00-4	205-911-9	205-99-2								
16	benzo[ghi]perylene				11 mg/kg		11	mg/kg	0.0011 %		
		205-883-8	191-24-2								
17	benzo[k]fluoranthene				13 mg/kg		13	mg/kg	0.0013 %		
	601-036-00-5	205-916-6	207-08-9								
18	chrysene				30 mg/kg		30	mg/kg	0.003 %		
	601-048-00-0	205-923-4	218-01-9								
19	dibenz[a,h]anthracene				3.2 mg/kg		3.2	mg/kg	0.00032 %		
	601-041-00-2	200-181-8	53-70-3								
20	fluoranthene				44 mg/kg		44	mg/kg	0.0044 %		
		205-912-4	206-44-0								
21	fluorene				2.5 mg/kg		2.5	mg/kg	0.00025 %		
		201-695-5	86-73-7								
22	indeno[123-cd]pyrene				11 mg/kg		11	mg/kg	0.0011 %		
		205-893-2	193-39-5								
23	naphthalene				0.83 mg/kg		0.83	mg/kg	0.000083 %		
	601-052-00-2	202-049-5	91-20-3								
24	phenanthrene				23 mg/kg		23	mg/kg	0.0023 %		
		201-581-5	85-01-8								
25	pyrene				28 mg/kg		28	mg/kg	0.0028 %		
		204-927-3	129-00-0								
Total:									1.66 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS8



Sample details

Sample Name:	WS8	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.5 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3					
2	cadmium { cadmium sulfide }							
	048-010-00-4	215-147-8	1306-23-6					
3	chromium in chromium(III) compounds { chromium(III) oxide }							
		215-160-9	1308-38-9					
4	chromium in chromium(VI) compounds { chromium(VI) oxide }							
	024-001-00-0	215-607-8	1333-82-0					
5	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6					
6	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7					
7	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1					
8	nickel { nickel dihydroxide }							
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]					
9	selenium { selenium compounds with the exception of cadmium sulposelenide and those specified elsewhere in this Annex }							
	034-002-00-8							
10	zinc { zinc chromate }							
	024-007-00-3							
11	acenaphthene							
		201-469-6	83-32-9					
12	acenaphthylene							
		205-917-1	208-96-8					
13	anthracene							
		204-371-1	120-12-7					
14	benzo[a]anthracene							
	601-033-00-9	200-280-6	56-55-3					

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number								
15		benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-032-00-3	200-028-5	50-32-8								
16		benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-034-00-4	205-911-9	205-99-2								
17	●	benzo[ghi]perylene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
			205-883-8	191-24-2								
18		benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-036-00-5	205-916-6	207-08-9								
19		chrysene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		601-048-00-0	205-923-4	218-01-9								
20		dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-041-00-2	200-181-8	53-70-3								
21	●	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-912-4	206-44-0								
22	●	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			201-695-5	86-73-7								
23	●	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-893-2	193-39-5								
24		naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		601-052-00-2	202-049-5	91-20-3								
25	●	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			201-581-5	85-01-8								
26	●	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			204-927-3	129-00-0								
Total:									0.232 %			

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS9

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS9	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.3 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3					
2	cadmium { cadmium sulfide }							
	048-010-00-4	215-147-8	1306-23-6					
3	chromium in chromium(III) compounds { chromium(III) oxide }							
		215-160-9	1308-38-9					
4	chromium in chromium(VI) compounds { chromium(VI) oxide }							
	024-001-00-0	215-607-8	1333-82-0					
5	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6					
6	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7					
7	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1					
8	zinc { zinc chromate }							
	024-007-00-3							
9	acenaphthene							
		201-469-6	83-32-9					
10	acenaphthylene							
		205-917-1	208-96-8					
11	anthracene							
		204-371-1	120-12-7					
12	benzo[a]pyrene; benzo[def]chrysene							
	601-032-00-3	200-028-5	50-32-8					
13	benzo[b]fluoranthene							
	601-034-00-4	205-911-9	205-99-2					
14	benzo[ghi]perylene							
		205-883-8	191-24-2					
15	benzo[k]fluoranthene							
	601-036-00-5	205-916-6	207-08-9					
16	chrysene							
	601-048-00-0	205-923-4	218-01-9					



#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number								
17		dibenz[a,h]anthracene				0.1 mg/kg		0.1 mg/kg	0.00001 %			
		601-041-00-2	200-181-8	53-70-3								
18	•	fluoranthene				1.4 mg/kg		1.4 mg/kg	0.00014 %			
			205-912-4	206-44-0								
19	•	fluorene				0.1 mg/kg		0.1 mg/kg	0.00001 %			
			201-695-5	86-73-7								
20		naphthalene				0.57 mg/kg		0.57 mg/kg	0.000057 %			
		601-052-00-2	202-049-5	91-20-3								
21	•	phenanthrene				1 mg/kg		1 mg/kg	0.0001 %			
			201-581-5	85-01-8								
22	•	pyrene				0.89 mg/kg		0.89 mg/kg	0.000089 %			
			204-927-3	129-00-0								
Total:									0.0372 %			

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: Crushed Concrete

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name: **Crushed Concrete** LoW Code: Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				9 mg/kg	1.32	11.883 mg/kg	0.00119 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium sulfide }			1	0.2 mg/kg	1.285	0.257 mg/kg	0.00002 %		
	048-010-00-4	215-147-8	1306-23-6							
3	chromium in chromium(III) compounds { chromium(III) oxide }				13 mg/kg	1.462	19 mg/kg	0.0019 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<5 mg/kg	1.923	<9.616 mg/kg	<0.000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	lead { lead chromate }			1	4 mg/kg	1.56	6.239 mg/kg	0.0004 %		
	082-004-00-2	231-846-0	7758-97-6							
6	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %		
	080-010-00-X	231-299-8	7487-94-7							
7	copper { dicopper oxide; copper (I) oxide }				11 mg/kg	1.126	12.385 mg/kg	0.00124 %		
	029-002-00-X	215-270-7	1317-39-1							
8	zinc { zinc chromate }				29 mg/kg	2.774	80.45 mg/kg	0.00805 %		
	024-007-00-3									
9	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
10	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
11	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
12	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
13	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
14	benzo[ghi]perylene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		205-883-8	191-24-2							
15	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
16	chrysene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
	601-048-00-0	205-923-4	218-01-9							



#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
17		dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3							
18	•	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0							
19	•	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7							
20		naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		601-052-00-2	202-049-5	91-20-3							
21	•	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8							
22	•	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0							
Total:									0.0139 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non CLP determinands

■ **chromium(III) oxide** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

■ **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

■ **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

■ **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

■ **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

■ **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

■ **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

■ **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

■ **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

■ **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2 H351

■ **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s)/Risk Phrase(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

■ **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Aquatic Chronic 2 H411, Repr. 2 H361d, Carc. 1B H350, Muta. 1B H340, STOT RE 2 H373, Asp. Tox. 1 H304, Flam. Liq. 3 H226

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species based on hazard statements

cadmium {cadmium sulfide}

Worst case species based on hazard statements

chromium in chromium(III) compounds {chromium(III) oxide}

Worst case species based on hazard statements

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case species based on hazard statements

lead {lead chromate}

Worst case species based on hazard statements

mercury {mercury dichloride}

Worst case species based on hazard statements

copper {dicopper oxide; copper (I) oxide}

Most likely common species

zinc {zinc chromate}

Worst case species based on hazard statements

nickel {nickel dihydroxide}

Worst case species based on hazard statements

selenium {selenium compounds with the exception of cadmium sulposelenide and those specified elsewhere in this Annex}

Worst case species based on hazard statements

Appendix C: Version

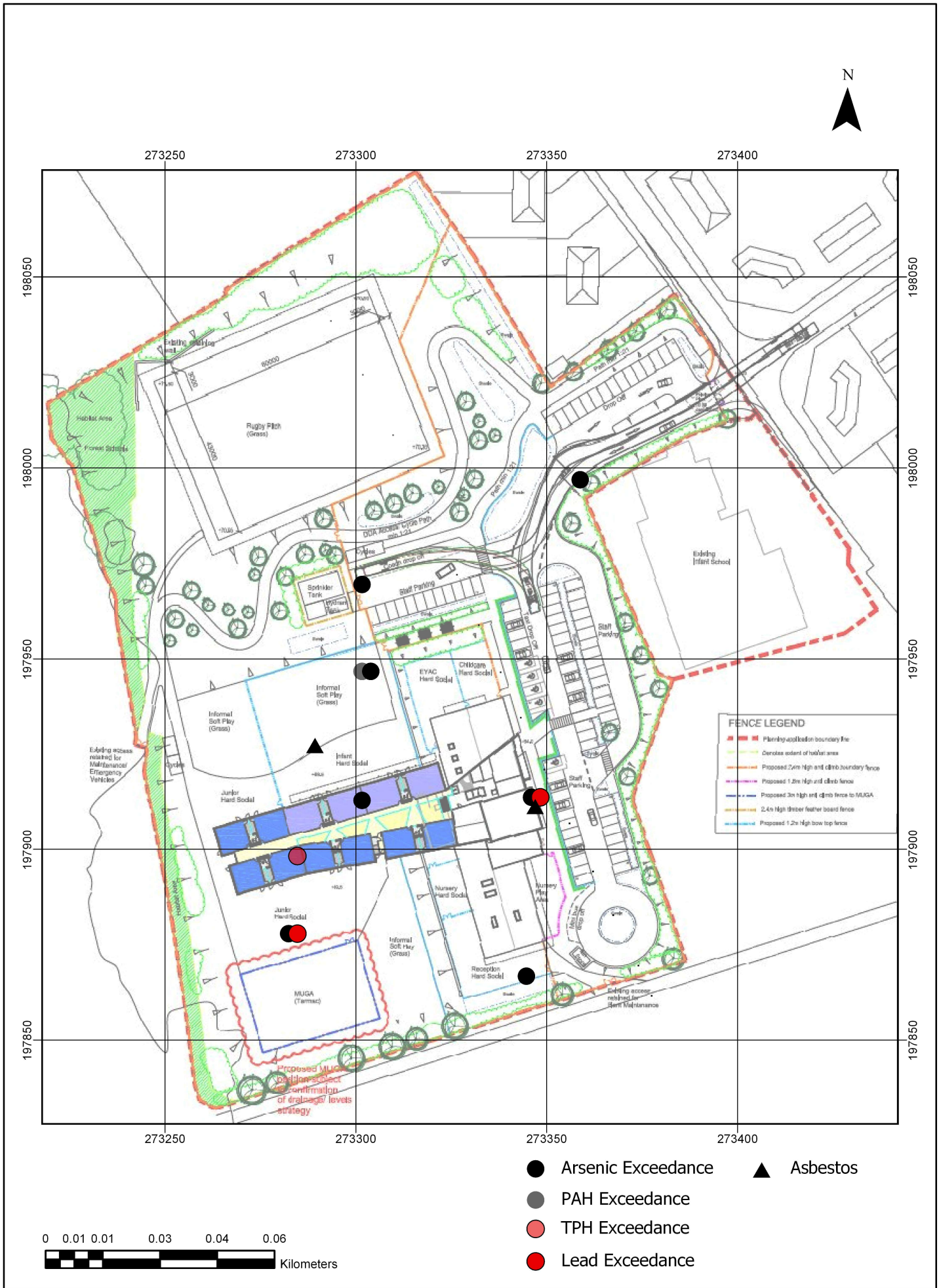
HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2019.316.4053.8153 (12 Nov 2019)
HazWasteOnline Database: 2019.316.4053.8153 (12 Nov 2019)



This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

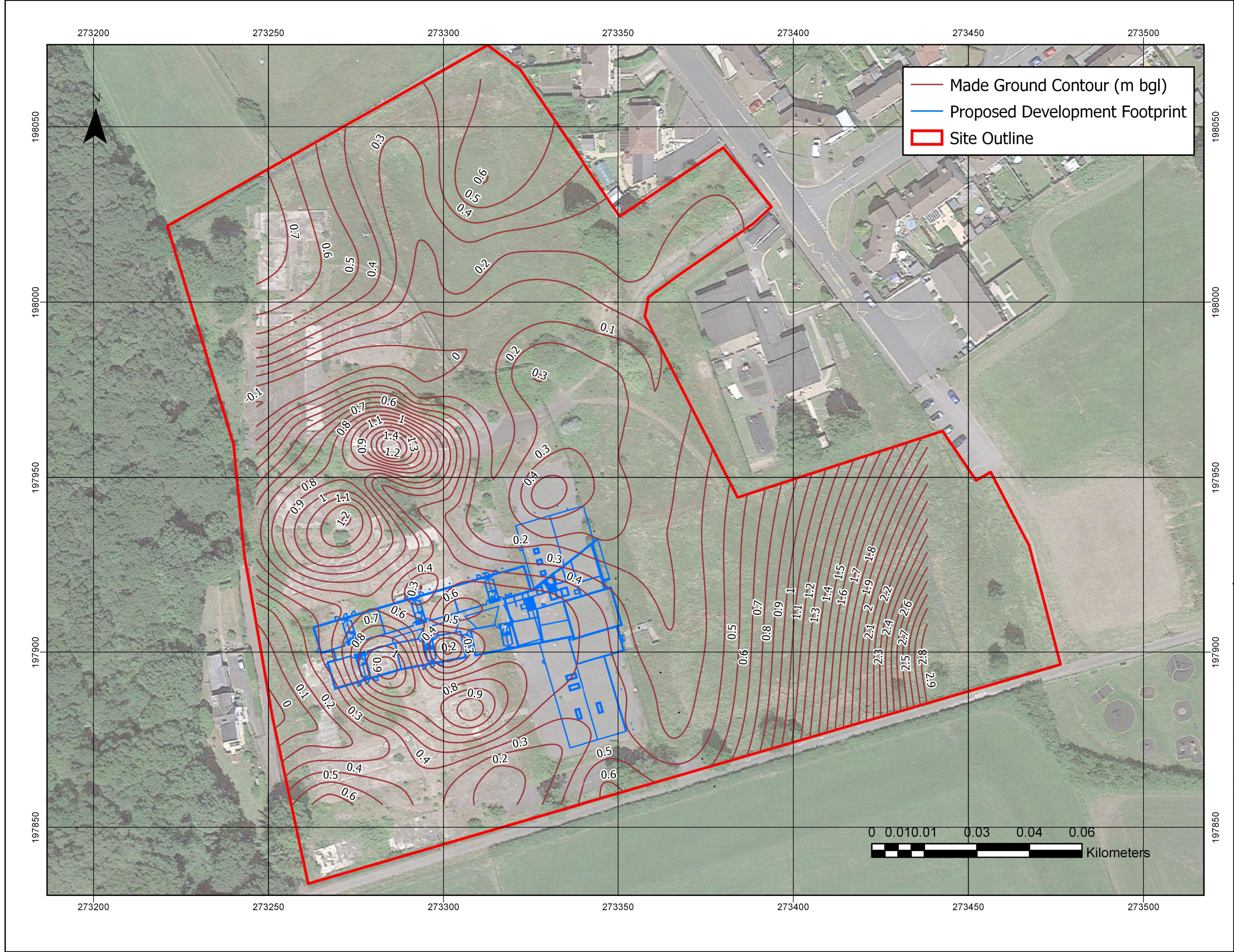
APPENDIX G – CONTAMINATION HOTSPOT SITE PLAN



Appendix G: Contamination Hotspot Site Plan



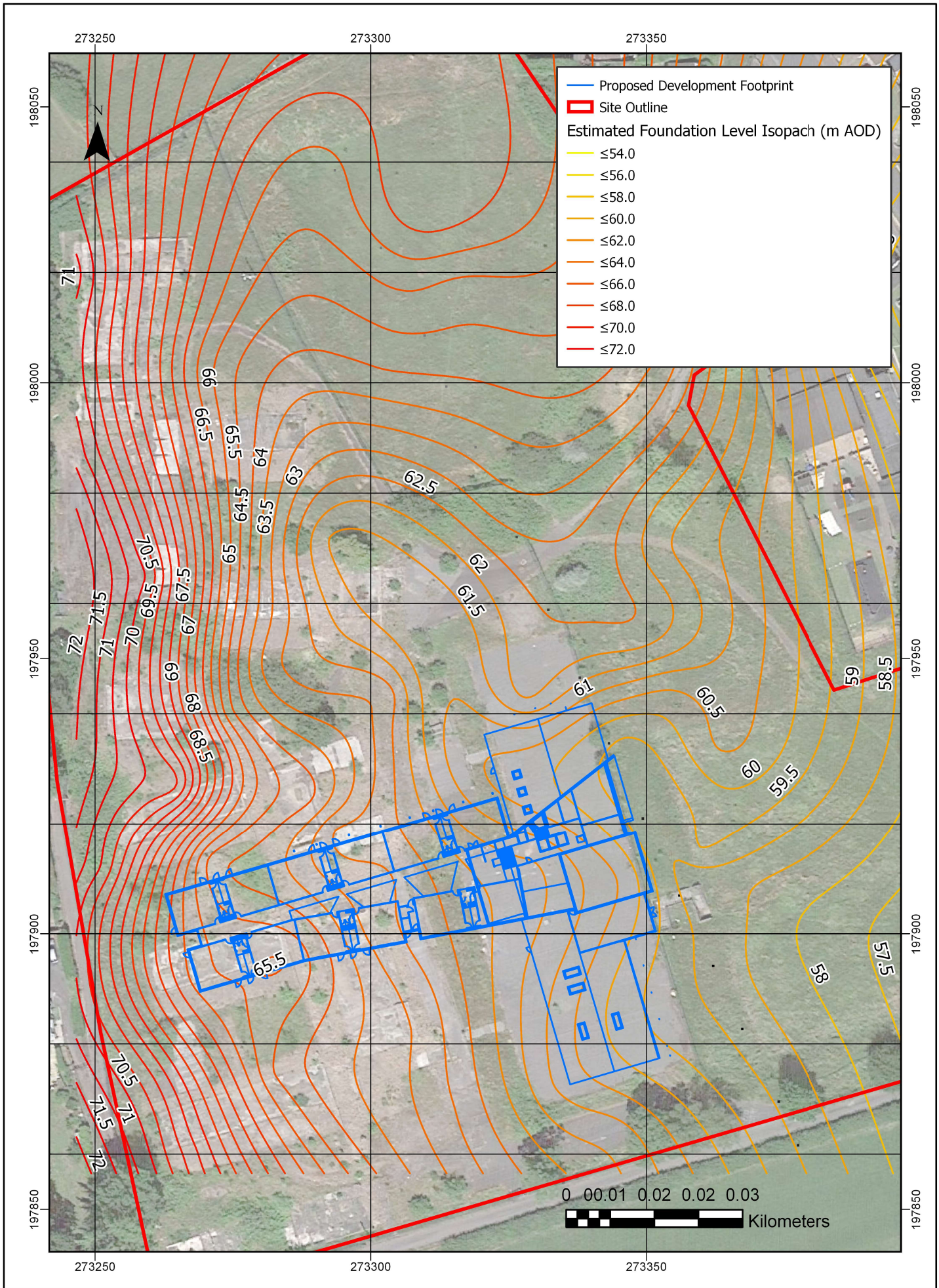
APPENDIX H – MADE GROUND THICKNESS ISOPACH



By:	MT	Date:	12/11/2019
Check:	MT	Date:	12/11/2019
Project			
Abbey School, Neath			
Title			
Made Ground Thickness Isopach			
Client			
BAM Construction			
Scale at A3: 1:1000			
Job No.	Drawing No.	Rev.	
19264			



APPENDIX I – ESTIMATED FOUNDATION DEPTH ISOPACH

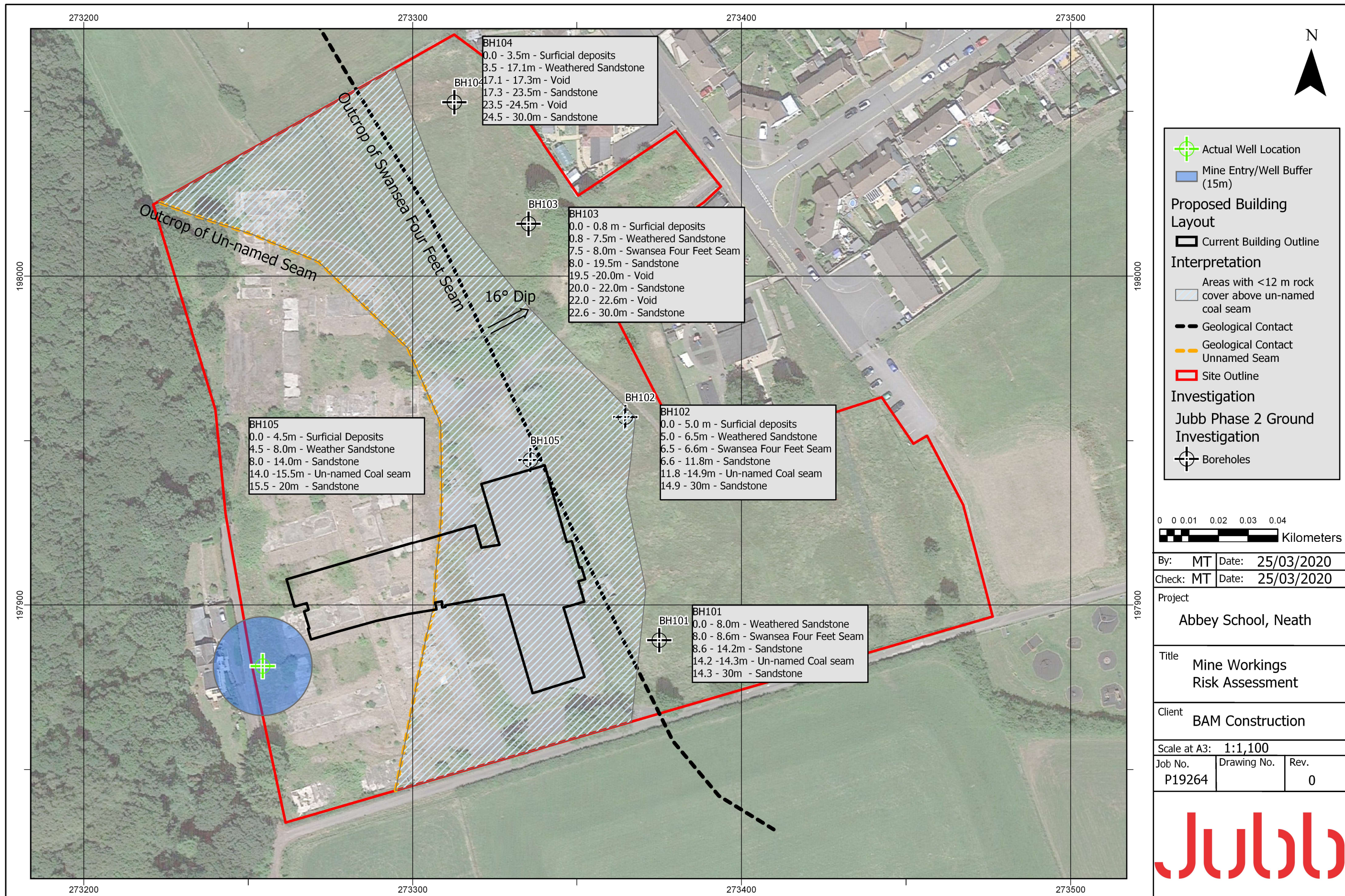


Abbey School Neath

Estimated Foundation Depth (m AOD)

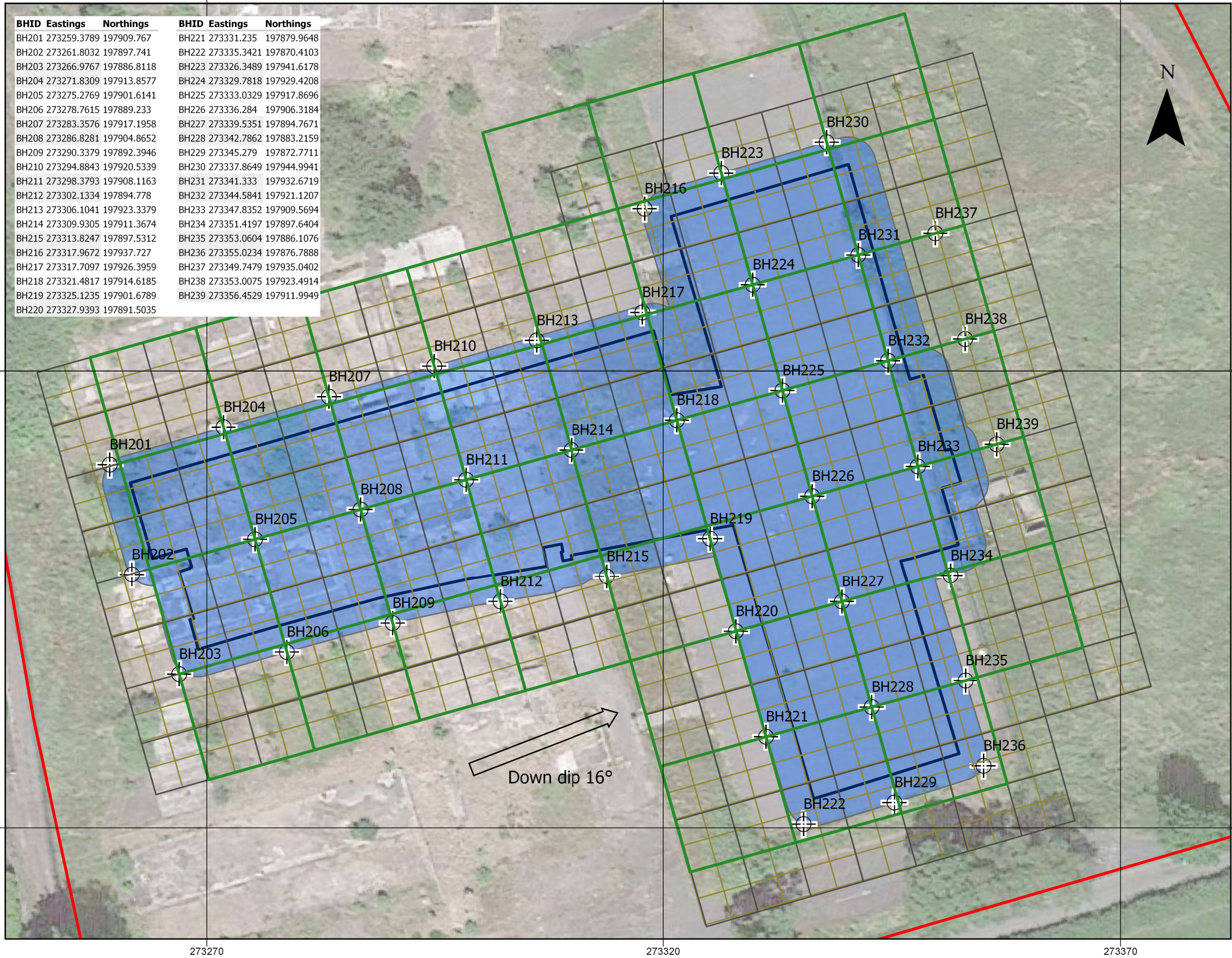


APPENDIX J – MINE WORKINGS RISK ASSESSMENT MAP



APPENIDX K – OPEN HOLE DRILLING INVESTIGATION PLAN AND GRID

BHID	Eastings	Northings	BHID	Eastings	Northings
BH201	273259.3789	197909.767	BH221	273331.235	197879.9648
BH202	273261.8032	197897.741	BH222	273335.3421	197870.4103
BH203	273266.9767	197886.8118	BH223	273326.3489	197941.6178
BH204	273271.8309	197913.8577	BH224	273329.7818	197929.4208
BH205	273275.2769	197901.6141	BH225	273333.0329	197917.8696
BH206	273278.7615	197889.233	BH226	273336.284	197906.3184
BH207	273283.3576	197917.1958	BH227	273339.5351	197894.7671
BH208	273286.8281	197904.8652	BH228	273342.7862	197883.2159
BH209	273290.3379	197892.3946	BH229	273345.279	197872.7711
BH210	273294.8843	197920.5339	BH230	273337.8649	197944.9941
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BH212	273302.1334	197894.778	BH232	273344.5841	197921.1207
BH213	273306.1041	197923.3379	BH233	273347.8352	197909.5694
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BH216	273317.9672	197937.727	BH236	273355.0234	197876.7888
BH217	273317.7097	197926.3959	BH237	273349.7479	197935.0402
BH218	273321.4817	197914.6185	BH238	273353.0075	197923.4914
BH219	273325.1235	197901.6789	BH239	273356.4529	197911.9949
BH220	273327.9393	197891.5035			

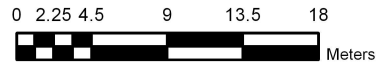


Proof Drilling Grid and Boreholes

- Primary 12 m grid
- Secondary 6 m grid
- Tertiary 3 m grid
- Investigation Boreholes (12 m Grid)
- Current Building Outline with 3 m buffer

Proposed Building Layout

- Current Building Outline
- Site Outline



By: MT Date: 25/03/2020

Check: MT Date: 25/03/2020

Project
Abbey School, Neath

Title
Open Hole Drilling Investigation

Client
BAM Construction

Scale at A3: 1:450

Job No.	Drawing No.	Rev.
19264	1	A



APPENDIX L – DRILL AND GROUT SPECIFICATION

Drill and Grout
Specification of
Shallow Mine
Workings



Abbey School

Neath

The logo for Jubb Consulting Engineers Ltd. It features the word "Jubb" in a stylized, white, sans-serif font. The letters are bold and have a modern, geometric feel. The "J" and "b"s have unique shapes with rounded terminals.

PREPARED BY:
Jubb Consulting Engineers Ltd.

FOR:
BAM Construction

DATE:
Feb 2020

REFERENCE:
19264-SPEC-01

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1 Project Information

1.1 Project Information

Client BAM Construction

1.2 Project Details

Project Name Abbey School

Location Abbey School, Neath

Jubb Project Number 19264

1.3 Report Details

Version 01

Status FINAL

Date February 2020

1.4 Project Authorisation

ISSUE HISTORY:

Version	Date	Detail
A	Jan 2020	DRAFT (For Approval)
B	Feb 2020	Final

AUTHORISATION:

Prepared By	Approved By
MT	MEC
MT	MEC

2 Introduction

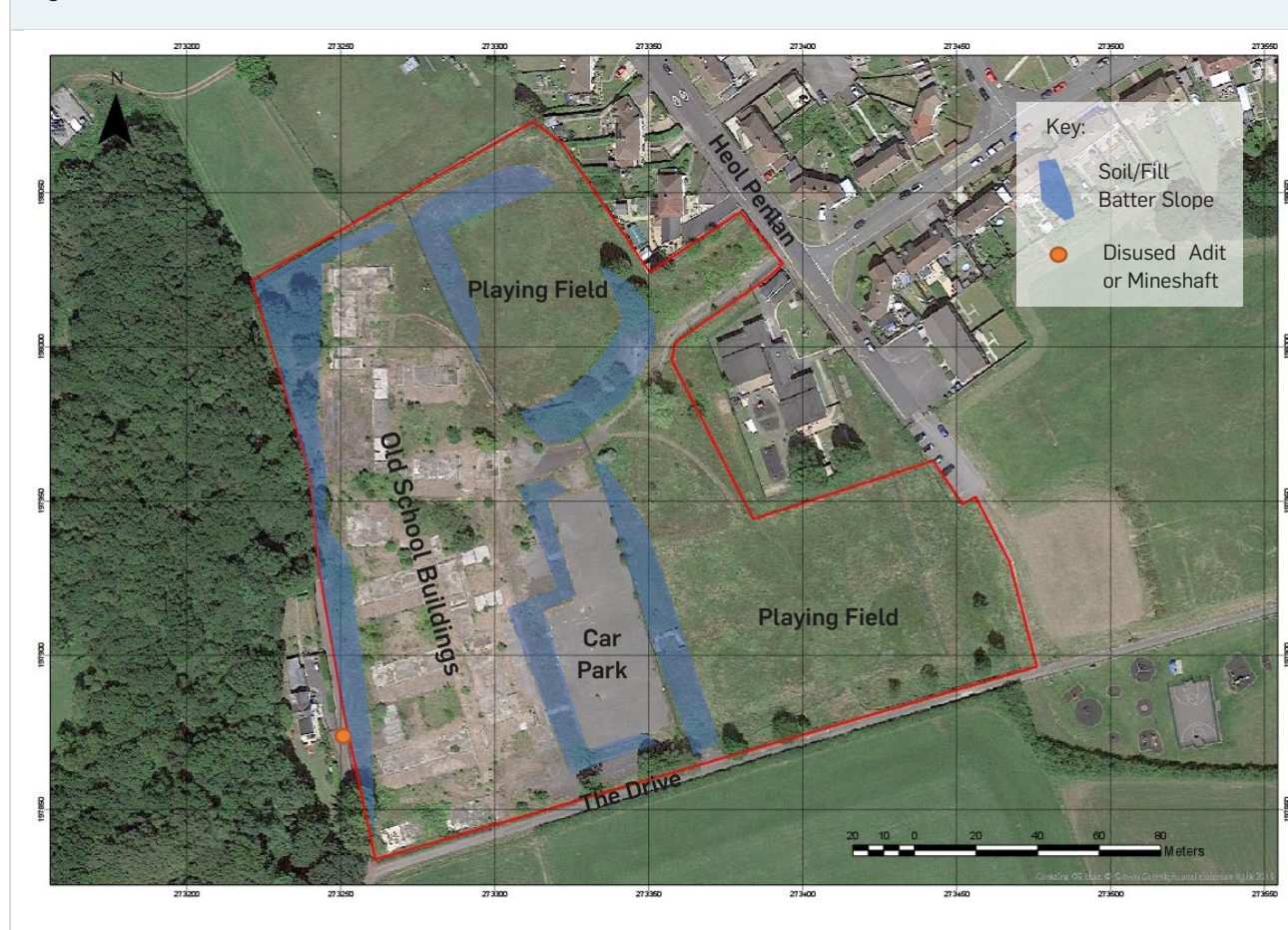
The subject site is located at the partially demolished site of the Dŵr y Felin Comprehensive School site off The Drive, in Neath, South Wales, which comprises a 3.3 Ha site. Jubb Consulting Engineers (Jubb) were commissioned by BAM Construction to prepare a specification for proof drilling and drill and grouting of potential shallow mine workings under the footprint of the proposed two-storey primary school development.

The site is approximately 3.3 Ha in area and was formerly this site of a comprehensive school. Currently, the above ground structures have been demolished, with the foundations and floor slabs *in-situ*.

2.1 Site Location

The site is located on a plot of land to the north of The Drive and east of Heol Penlan, in Neath Abbey, 1km northwest of Neath in South Wales. The site is accessed from The Drive which runs along the southern site boundary and Heol Penlan, which partially runs along the eastern site boundary. The outline of the site is shown in Figure 1.

Figure 1: Site Location



The Ordnance Survey (Landranger) grid reference at the centre of the site is SS 73290 97902.

2.2 Site Description

The site is approximately 3.3 Ha in area, and irregular in shape due to the presence of Neath Abbey Infants School to the east. The eastern half of the site forms two separate terraces occupied by abandoned level playing fields. To the western half, the site forms approximately three different terrace levels, which were previously the site of

multiple school buildings. The site slopes moderately downhill to the east by 5°. At the time of investigation, these buildings had been demolished, with only the foundations and floor slabs remaining *in-situ*. Demolition material was observed to be crushed and distributed around the slab areas infilling topographic lows and was also used to form graded slopes. Towards the centre of the site, running north-south is a 4 m high soil/fill batter present between the playing field and the car park and a 3.5 m high soil/fill batter present between the school and the car park. Additional soil cut/embankment batters are present to the northwest of the site at the northern playing field up to 3.5 to 4 m in height.

The site is bound to the south by The Drive, to the east by Heol Penlan, Neath Abbey Infant School and residential housing to the north-eastern corner of the site, to the north by farmland and a covered reservoir and to the west by forestry and a single residential building. Running along the western site boundary is a 3-4 m high grass cutting, forming slope angles up to 38°. Car parking asphalt surfaces occupy the centre of the site. The site is completely enclosed with 2 m high palisade security fencing.

At the time of investigation, an ecological survey was being carried out in parallel, with reptile fencing installed around the perimeter of the site. Initial mobilisation of sub-contractors was delayed, allowing for the site ecologist to make necessary preparations for machinery to access the site and disturb vegetation.

2.3 Contractor

A specialist contractor will be appointed to undertake the proof drilling and drill and grouting works in accordance with the specification herein.

3 Scope and Objectives

3.1 Objectives

The main objectives of the works are to:

- Confirm the presence/absence of shallow mine working immediately under the proposed building footprint (including a 3 m buffer around the building footprint) through investigation drilling;
- Confirm the extent and condition of any shallow mine workings encountered through proof drilling; and
- Grouting/infilling of voids encountered.

Proof drilling and investigation boreholes will be carried out initially on a 12 m grid over the proposed building footprint at locations indicated on drawing in Appendix 1 - 19264-1-A. The depth of all boreholes are assumed to be to 15 m depth below existing ground level (bgl). On encountering mine workings during investigation drilling works, additional proof drilling works will be carried out on a 6 m spaced primary grid and a 3 m spaced secondary grid, and if necessary, a 3 m spaced tertiary grid (straddling the secondary grid).

It is understood the contractor will have sole access to all areas of the site for the duration of the works. It should be noted, investigation boreholes located to the south of the site, adjacent to an existing soil embankment/bench will require additional earthworks to access the exact locations if investigation locations confirm cavities/mine workings.

The specialist contractor is expected to complete the works in accordance with project approved method statements and this specification.

The works will be partially supervised by the Engineer.

3.2 Scope of Works

The scope of works will comprise the following:

- Compile suitable site-specific risk assessments and method statements;
- Liaison with relevant authorities, which include but not limited to The Coal Authority, utilities and local council requirements;
- Liaison with Jubb site engineer;
- Mobilisation and demobilisation of all necessary equipment to/from site included but not limited to drilling equipment, grouting equipment and site compound;
- Drilling of all boreholes on regular grid pattern as outlined in Appendix 1 - 19264-1-A – Proposed Proof Drilling Works. Drilling shall be carried out to 15 m depth, or to at least 1 m below the base of mine workings (whichever is encountered first);
- Infilling of voids, workings or broken ground with an approved mix of pulverised fuel ash (PFA) : cement grout including testing of grout prior to installation;
- Reinstatement of the site works area; and
- Daily site reports.

3.3 Relevant Documents and Drawings

The following documents relating to the works are as follows:

- Integral Géotechnique (Wales) Limited, October 2014. Dŵr y Felin School, Neath, Site Investigation Report, Document Ref: 11437/CF/14/SI/Rev A.
- Jubb Consulting Engineers Ltd, November 2019. Supplementary ground Conditions Assessment Report. Abbey School, Neath. Report Ref: 19264-GCA-01; and
- Drawing Appendix 1 - 19264-1-A – Proposed Proof Drilling Works.

3.4 Consent, Agreement and Licensing

The specialist contractor will be responsible for obtaining the Coal Authority permit for completing all drilling works for the full duration of the drilling and grouting works.

The contractor will be responsible for complying with Local Authority and works conditions relating to dust, noise and vibration levels as well as control over work hours.

The contractor will obtain all other necessary licenses and permits necessary to complete the works.

4 Site Establishment

It has been assumed site establishment has been arranged between BAM Construction and the specialist contractor, which will be maintained for the duration of the works.

5 Recording of Site Works

5.1 Site Operation Records

The following site records shall be made within the stated frequency and supplied to the engineer:

- Equipment, labour and plant – Weekly record;
- Quantity of materials delivered to site – Daily records; and
- Description of operations and activities on site – Daily Record.

5.2 Testing and Testing Facilities

The specialist contractor shall carry out testing as outlined within this specification, or on request by the Engineer. The results of the testing will be supplied to the Engineer within 24 hours. The contractor shall supply details of the proposed external laboratory, quality control checks and proposed equipment to be used to the Engineer. The contractor is expected to provide a site engineer to self-certify and maintain QA records during the works.

5.3 Water Supply for General Use

Water supply is to be arranged between the contractor and BAM Construction.

5.4 Working Hours

Working hours are to be arranged between the contractor and BAM Construction.

6 Investigation Boreholes

6.1 Overview

The following provides a summary of boreholes which may be required during the course of the works:

- Investigation boreholes on a 12 m spaced grid to identify the presence/absence of voids/mine workings immediately below the building footprint;
- On encountering a void within an investigation borehole, a primary grid of 6 m spaced boreholes will be drilled surrounding the affected borehole to further delineate the distribution of the workings;
- Further delineation of boreholes may be required using a 3 m spaced secondary and tertiary grid.

All boreholes will be drilled to a maximum depth of 15 m bgl or 3 m below the base of a cavity/mine working. All boreholes will require backfilling with cement/PFA grout as specified within Section 7.0 of the specification.

The contractor will be responsible for setting out of all boreholes in accordance with the borehole drawing in Appendix 1 - 19264-1-A – Proposed Proof Drilling Works.

At this stage it is expected that BH237 to BH239 will require additional earthworks to access these positions. Jubb shall be advised by the contractor where borehole relocation is required. Jubb will review proposed new borehole positions and provide instruction on the suitability.

Each borehole shall be positioned within 0.2 m of the planned position (Appendix 1 - 19264-1-A – Proposed Proof Drilling Works). Drilling depths shall be recorded to 0.1 m accuracy. It is the contractor's responsibility to position and locate each borehole as accurately as stated.

Investigation drilling shall be carried out using rotary or rotary percussive open hole techniques, with boreholes drilled to a minimum diameter of 75 mm using air or water flush (final specification of drilling requirements may be controlled by restrictions imposed by the Coal Authority). Boreholes shall be drilled to within 5° from vertical.

Ground gas shall be monitored by the contractor during the drilling works, with all works to comply with the Coal Authority 'Guidance on managing the risk of hazardous gases when drilling or piling near coal' (dated 20 June 2019).

It is expected that casing will be required within superficial deposits and broken ground until bedrock is encountered.

6.2 Daily Records

Daily drilling records shall be maintained throughout the duration of the works and shall include the following:

- Project details (title, number, locations);
- Borehole Number and date;
- Contractor details (name, address);
- Rig details and crew (including hours worked);
- Drilling method (flush type, drill bit size);
- Borehole details (diameter, depth, record of casing used – id and od) and shift progress;
- Details of loss of flush (depth and depth where loss and regain of flush occurred);
- Groundwater details (recorded strikes, inflows);
- Standing time and reasoning;
- Drilling time record;
- Description of arisings (colour and composition) and whether ground is solid or broken, description of made ground or superficial deposits present. Depths to be recorded in m bgl;
- Details and depth of mine workings/cavities including size of cavity, soft ground, evidence of mine works, infilling etc;
- Details of additional coal seams encountered including thickness and condition; and
- Depth of completed boreholes including details and depth of grouting tremie.

7 Backfilling Requirements

7.1 Grout – General

Grout shall comprise the following components:

- Pulverised Fuel Ash (PFA) from an approved supplier, which shall be appropriately handled in accordance with COSHH regulations and stored and protected from adverse weather conditions. Suppliers are to provide evidence results of chemical leachability tests are to the requirements of the Environment Agency;
- Sand not exceeding 2mm maximum particle size;
- Cement comprising CEM1 mix in accordance with BS EN 197-1:2000;
- Clean supply of water. Water quantities to be determined based on moisture content of the PFA, which the engineer may request testing on.

Alternative replacements to PFA, if unavailable, shall be proposed by the contractor for the Engineer to approve. If chemical additives are to be added to the grout, approval by the Engineer is required prior to use. Additives are to be used in accordance with product instructions.

7.2 Grout Mix

Depending on the ground conditions encountered, the following grout mixes are expected:

- PFA:Cement ratio of 10:1 – within highly fractured/broken grout;
- 5:5:1 PFA:Sand:Cement -to backfill boreholes where no mine workings were encountered.

All grout mixtures shall be confirmed by the contractor and approved by the engineer.

Moisture content of the mixed grout (taking into consideration the moisture content of the PFA) shall comprise a mix of water:grout mix ratio of 0.3-0.4 : 1.

The grout shall be adequately mixed using a grouting plant suitable for the proposed grout mixes to produce a uniform and homogeneous grout with no aggregation present prior to pumping.

7.3 Grout Testing

Grout testing shall comprise the following testing:

- Sand/PFA moisture content;
- Grout flow meter testing;
- Bleeding tests; and
- Grout Cube Compressive Strength.

Sand/PFA moisture content is to be determined in accordance with BS1377:1990.

Ground Flow Meter Testing – shall be measured using a flowmeter. The flow of grout shall range between 400 mm to 600 mm. Should flowability testing fail, grouting will cease, the grout will be readjusted and retested to prove compliance. Testing shall be carried out hourly during grouting as well as at the start of each grout batch and or adjustments to grout mix.

Bleeding test – After 2 hours, the quantity of added water shall not exceed 2% of its total volume, or 5% after 24 hours. The test should be measured at 18°C in a covered glass cylinder of approximately 100 mm diameter and a grout height of 100 mm (+/-1mm). Bleeding tests shall be carried out daily.

Grout Cube Compressive Strength – A total of 3 no. 150 mm cube samples of grout shall be collected. Compressive Strength Testing shall be carried out one after 7 days, one after 14 days and one after 28 days. For proposed grout mixes of 10:1 PFA:cement, a compressive strength of 1N/mm² or greater shall be achieved. Flowability testing shall be carried out of the same samples. Testing shall be carried out at the start of grouting and after every 50 tonnes of grout injected.

7.4 Grouting

7.4.1 General

The contractor is responsible for preventing damage, spillage and escape of grout across site or into the surrounding drainages (including drainage ditches, sewers and other service pipes) and waterways.

Grouting works are to commence initially within the deepest mine workings, working progressively up-dip.

7.4.2 Grout Volume Control

The contractor shall record the volume of grout introduced into each borehole and the pressure of the grout should be noted.

Where primary investigation boreholes take more than 5 tonnes of grout, then the secondary boreholes will be drilled 6 m adjacent to the borehole as per the grids indicated in Appendix 1 - 19264-1-A – Proposed Proof Drilling Works. The flow of grout away from the base of the borehole may be restricted by using one of the following methods:

- Increasing grout viscosity to 5:5:1 sand:PFA:cement;
- Reduce the water/solid ratio;
- Wash sand into the borehole using grout;
- Inject pea gravel into the borehole; or
- Use a chemical hardener.

7.4.3 Grout Pressure

In accordance with the CIRIA Abandoned Mine Workings Manual, C758D (dated 2019) the grout pressure should not exceed the existing effective overburden pressure at ground level, otherwise hydraulic fracturing may occur resulting in heave of the ground surface.

7.4.4 Grout Tremmie

Grouting is to be tremmied to the base of the borehole, with a 'T' connection pipe to be placed at the top of the tremie with a pressure gauge attached to the inlet to measure up to 300 psi.

7.4.5 Grouting Records

The following grouting details shall be recorded:

- Details of type of injection and grout-line dimensions;
- Type of grout mix and quantities injected;
- Details of grout samples taken for testing;
- Grout pressures recorded and corresponding depths;
- Details of abandoned casing; and
- Details of any settlement, ground heave.

7.4.6 Grout Curtain Wall/Barrier

Where large voids/mine workings are encountered, a wall or perimeter shall be established around the perimeter and down-dip of the affected area. The perimeter wall will satisfy of the following criteria:

- The perimeter wall should form a 'U' shaped alignment of boreholes at 1.5 m to 3.0 m centres;
- Boreholes are to be drilled of a diameter of 100 mm with casing extending to bedrock; and
- Viscous grout mix comprising cement, flyash, sand/pea gravel to be injected into each borehole to form interconnecting cone deposits at the base of the void.

The final details a sequence of works are to be confirmed by the Engineer on a case by case basis.

7.5 Infilling of Significant Mine Workings

7.5.1 Overview

On encountering large voids/mine workings, it may be required to introduce sand and gravel into the boreholes prior to commencing grouting works. These works will occur after establishing a grout/curtain wall/barrier down dip of the workings/cavity. The sand and gravel should be stored correctly to avoid any contamination of materials in direct contact.

7.5.2 Infilling Sequence

The following sequence of infilling works will be carried out on encountering a void/cavity:

- Establish grout curtain wall/barrier downdip of the workings;
- Introduction of sand and gravel prior to grouting; and
- Grouting works shall commence within the lowest elevation part of the mine workings and will progress up-dip.

For large voids/workings, a maximum of 20 tonnes of grout will be injected into a single borehole during a 24 hour period. Works shall cease and recommence not less than 24 hours. A minimum of 5 tonnes of grout will be injected into any single borehole in a single operation, unless the borehole tops out.

7.5.3 Validation Testing

Validation testing will be required where voids/mine workings have been encountered. Testing will comprise rotary core drilling within proximity of known infilled voids. Boreholes will require to achieve core recovery within the region of 90-95%. Grout strength testing shall not be considered until at least 28 days following the completion of the drill and grouting works. Quantities of validation testing boreholes will depend on the size and extent of cavities encountered and will be confirmed by the Engineer.

7.5.4 Introduction of Sand and Gravel into Workings/Cavity

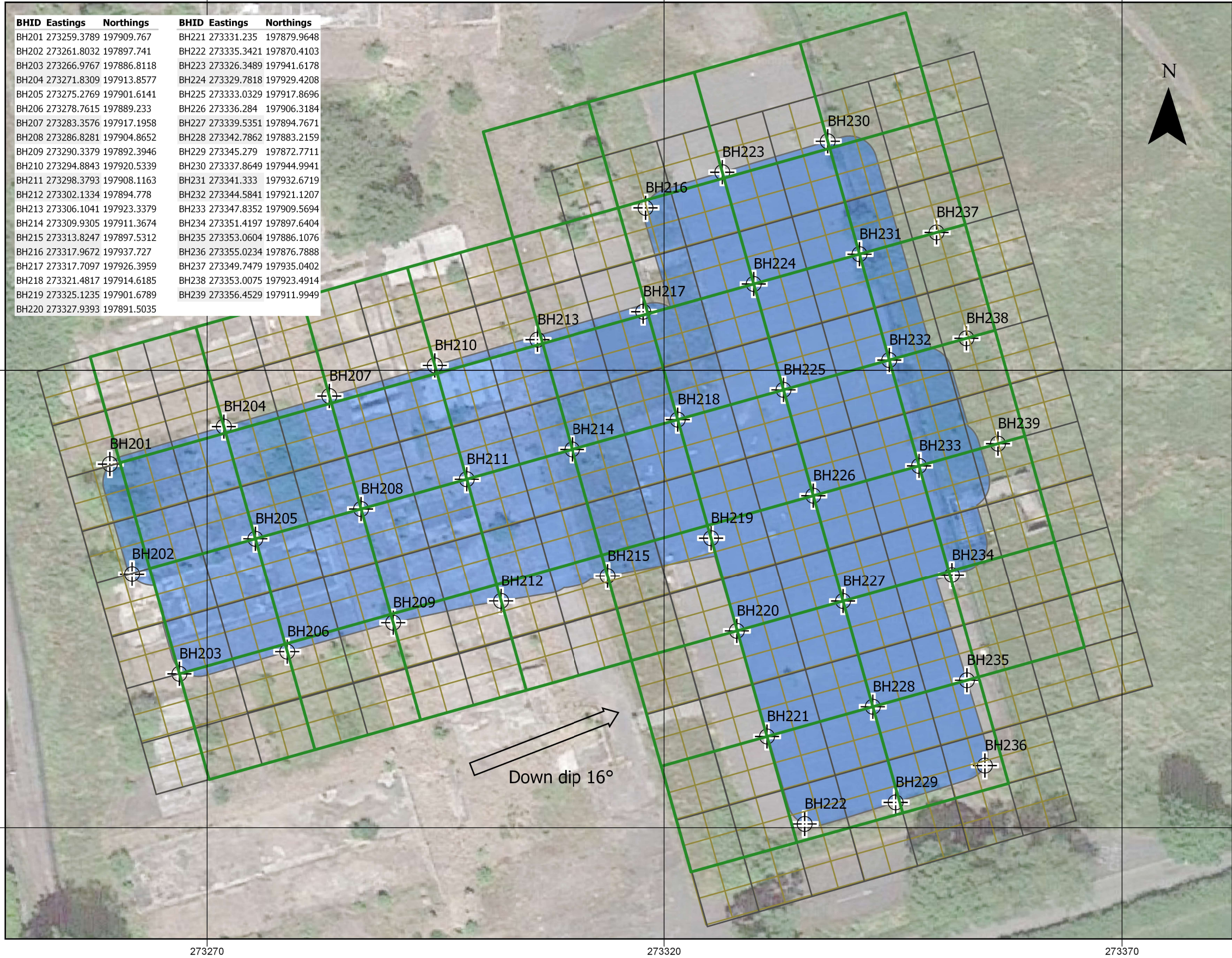
Sand and gravel will either be introduced into a borehole by washing with water or grout. Other methods will require approval by the Engineer. Where gravels are placed into the borehole, the rate should be monitored as to ensure no bridging occurs within the borehole.

8 Reinstatement

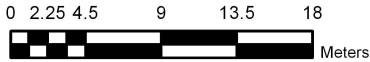
It is expected all areas where drill and grouting works have been carried out will be returned to at least their original site condition. All contractor equipment, plant, rubbish and debris will be removed from site.

Appendix A – Proposed Proof Drilling Works and Grid Arrangement

BHID	Eastings	Northings	BHID	Eastings	Northings
BH201	273259.3789	197909.767	BH221	273331.235	197879.9648
BH202	273261.8032	197897.741	BH222	273335.3421	197870.4103
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BH216	273317.9672	197937.727	BH236	273355.0234	197876.7888
BH217	273317.7097	197926.3959	BH237	273349.7479	197935.0402
BH218	273321.4817	197914.6185	BH238	273353.0075	197923.4914
BH219	273325.1235	197901.6789	BH239	273356.4529	197911.9949
BH220	273327.9393	197891.5035			



- Primary 12 m grid
- Secondary 6 m grid
- Tertiary 3 m grid
- Investigation Boreholes (12 m Grid)
- Current Building Outline with 3 m buffer



By: MT Date: 10/02/2020
Check: MT Date: 10/02/2020

Project
Abbey School, Neath

Title
Proposed Proof Drilling Works

Client
BAM Construction

Scale at A3: 1:450

Job No. 19264	Drawing No. 1	Rev. A
------------------	------------------	-----------



APPENDIX M – OPEN HOLE DRILLING LOGS

Contract Name NEATH ABBEY SCHOOL

Contract No

Date 16.3.20Sheet 1 of 1 Working Day 14

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149
E-mail: admin@apex-drilling.com

Client BAM NUTTALL

Order No

Drill Crew C. JONESRig Type KLEMM

Bore Hole		Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
203		0 11.5	11.5 15.0	11.5 3.5		SC + GR + B SST	10.50 CASING 13.00 PLASTIC	Borehole			
239-		0 8.2	8.2 15.0	8.2 7.8		SC + GR + B SST MST	00.55 MTO + SET UP ON BH 239				
						7.50 m CASING 9.00 m PLASTIC					
238		0 9.5	9.5 15.0	9.5 5.5		SC + GR + B SST + MST	9.00 m CASING 12.00 m PLASTIC				
							20 x BOG MATS ON SITE				

Sheet 1 of 1 Working Day 13

APEX
DRILLING
SERVICES

DAILY DRILLING LOG
Tel: 01656 749149
E-mail: admin@apex-drilling.com

Client **BAM NUTTALL**

Order No. _____

Drill Crew C. JONES

Rig Type 12Lemm

[illegible]

QUANTITIES

Site Moves.....(No)	Casingm	Core Boxes(No)	Fixed Plant.....
Bore Moves(No)	Open Hole.....m	Core Liner.....	
Return Moves(No)	W. Samplesm	SPT/CPT.....(No)	Standing Times.....(hrs)
Security YES / NO	Corking.....m	Installationm	Breakdown.....(hrs)

Diameter.....	Ø
Well Casing.....	m
Well Screen.....	m
Gravel.....	m
Bentonite.....	m
Gas Bung.....	(No)
End Cap.....	(No)
Cover Type	RAISED / FLUSH
Water Level.....	m
Remarks.....	



Certificate No: 007508

Signed
by Apex

Signed _____ Date _____
by Client

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Contract Name NEATH ABBEY SCHOOL

Contract No

Date 12.3.20Sheet 1 of 12 Working Day

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149
E-mail: admin@apex-drilling.com

Client BAM NUTTALL

Order No

Drill Crew C. JONESRig Type KLEMM

Bore Hole		Top Depth	Base Depth	Thickness	Recovery	Strata Description		Standing Time — Reason	INSTALLATION DETAILS			
204		11.0	12.5	1.5		SC + GR + B	CASING 6.00 - 10.50m		Borehole			
		12.5	14.0	1.5		MST						
		14.0	15.5	1.5		SST	PLASTIC 14.00m					
201		0	11.5	11.5		SC + GR + B	CASING 10.50m					
		11.5	15.0	3.5		SST	PLASTIC 13.00m					
202		0	10.8	10.8		SC + GR + B	CASING 10.50m					
		10.8	12.0	1.2		SST						
		12.0	12.9	0.9		MST	PLASTIC 12.0m					
		12.9	15.0	2.1		SST						
								</				

QUANTITIES

Site Moves.....(No)
Bore Moves.....(No)
Return Moves.....(No)
Security YES / NO

Casing.....m
Open Hole.....m
W. Samples.....m
Corking.....m

Core Boxes.....(No)
Core Liner.....m
SPT/CPT.....(No)
Installation.....m

Fixed Plant.....
Standing Times.....(hrs)
Breakdown.....(hrs)



Certificate No: 08750A

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by Client

Date

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Contract Name NEATH ABBEY SCHOOL

Contract No

Date 11.3.20Sheet 1 of 1 Working Day 10

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149
E-mail: admin@apex-drilling.com

Client BAM NUTTALL

Order No

Drill Crew C. JONESRig Type KLEMM

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
208	6.5	12.5	6.0		Sc + GR + B		Borehole			
	12.5	14.5	2.0		SST	PLASTIC 14.00m				
	14.5	15.5	1.0		MST	CASING 6.00m				
207	0	1.4	1.4		MG					
	1.4	12.5	11.1		Sc + GR + B	CASING 6.00m				
	12.5	15.5	3.0		SST	PLASTIC 14.00m				
210	0	12.4	12.4		Sc + GR + B					
	12.4	14.2	1.8		MST	CASING 7.50m				
	14.2	15.4	1.2		SST	PLASTIC 13.00m				
211	0	1.3	1.3		MG					
	1.3	11.9	10.6		Sc + GR + B	CASING 7.50m				
	11.9	13.0	1.1		MST	PLASTIC 13.00m				
	13.0	15.0	2.0		SST					
204	0	1.2	1.2		MG					
	1.2	11.0	9.8		Sc + GR + B	CASING 6.00m				

QUANTITIES	Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....	Standing Times.....(hrs)
	Bore Moves.....(No)	Open Hole.....m	Core Liner.....m	Breakdown.....(hrs)	
	Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)		
	Security YES / NO	Corking.....m	Installation.....m		

Diameter.....Ø

Well Casing.....m

Well Screen.....m

Gravel.....m

Bentonite.....m

Gas Bung.....(No)

End Cap.....(No)

Cover Type **RAISED / FLUSH**

Water Level.....m

Remarks



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Signed by Client

Date

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Contract Name NEATH ABBEY SCHOOL

Contract No

Date 10.3.20Sheet 1 of 1 Working Day 9

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149
E-mail: admin@apex-drilling.com

Client BAM NUTTALL

Order No

Drill Crew C. JONESRig Type KLEMM

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
214	0	12.0	12.0		Sc + Gr + B		Borehole			
	12.0	14.0	2.0		MST					
	14.0	15.0	1.0		SST					
215	0	11.1	11.1		Sc + Gr + B	CASING 7.50m				
	11.1	12.7	1.6		MST	PLASTIC 13.00m				
	12.7	15.0	2.3		SST					
209	0	1.5	1.5		MG					
	1.5	11.8	10.3		Sc + Gr + B	CASING 9.00m				
	11.8	15.0	3.2		MST / SST	PLASTIC 13.00m				
212	0	0.9	0.9		MG					
	0.9	11.0	10.1		Sc + Gr + B	CASING 7.50m				
	11.0	11.9	0.9		SST	PLASTIC 13.00m				
	11.9	13.0	1.1		MST					
	13.0	15.0	2.0		SST					
208	0	1.5	1.5		MG					
	1.5	6.5	5.0		Sc + Gr					

QUANTITIES

Site Moves.....(No) Casing.....m Core Boxes.....(No) Fixed Plant.....
 Bore Moves.....(No) Open Hole.....m Core Liner.....m
 Return Moves.....(No) W. Samples.....m SPT/CPT.....(No) Standing Times.....(hrs)
 Security YES / NO Corking.....m Installation.....m Breakdown.....(hrs)

Diameter.....Ø
 Well Casing.....m
 Well Screen.....m
 Gravel.....m
 Bentonite.....m
 Gas Bung.....(No)
 End Cap.....(No)
 Cover Type RAISED / FLUSH
 Water Level.....m
 Remarks

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by ApexSigned
by Client

Date

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Contract Name NEATH ABBEY SCHOOL

Contract No

Date 9.3.20Sheet 1 of 1 Working Day 8**APEX**
DRILLING
SERVICES**DAILY DRILLING LOG****Tel: 01656 749149**

E-mail: admin@apex-drilling.com

Client BAM NUTTALL

Order No

Drill Crew C. JONESRig Type KLEMM

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
223	6.5	11.5	5.0		SC + GR + B		Borehole			
	11.5	12.5	1.0		SST					
	12.5	15.0	2.5		MST	6.00m CASING 13.00m PLASTIC				
230	0	0.5	0.5		MG					
	0.5	13.5	13.0		SC + GR + B					
	13.5	15.0	1.5		MST					
	15.0	16.3	1.3		COAL					
	16.3	16.5	0.2		MST	9.00m CASING 15.00m PLASTIC				
217	0	0.3	0.3		MG					
	0.3	12.0	11.7		SC + GR + B					
	12.0	12.9	0.9		SST	6.00m CASING				
	12.9	15.0	2.1		MST	13.00m PLASTIC				
213	0	0.5	0.5		MG					
	0.5	11.8	11.3		SC + GR + B					
	11.8	14.5	2.7		MST	6.00m CASING				
	14.5	15.0	0.5		SST	13.00m PLASTIC				

QUANTITIES	Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....
	Bore Moves.....(No)	Open Hole.....m	Core Liner.....m	
	Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)	Standing Times.....(hrs)
	Security YES / NO	Corking.....m	Installation.....m	Breakdown <u>CAGE WELDING</u> <u>01.30 hrs</u> (hrs)

Diameter.....Ø

Well Casing.....m

Well Screen.....m

Gravel.....m

Bentonite.....m

Gas Bung.....(No)

End Cap.....(No)

Cover Type RAISED / FLUSH

Water Level.....m

Remarks



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Date

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Contract Name NEATH ABBEY SCHOOL

Contract No

Date 6.3.20Sheet 1 of 1 Working Day 7

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client BAM NUTTALL

Order No

Drill Crew C. JONESRig Type KLEHM

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
224	6.5	11.3	4.8		SC + GR + B		Borehole			
	11.3	14.0	0.7		SST	6m casing				
	14.0	15.0	1.0		MST	12.00m PLASTIC				
229	0	0.5	0.5		MG		6m casing			
	0.5	14.5	14.0		SC + GR + B					
	14.5	14.8	0.3		MST					
	14.8	15.2	0.4		COAL					
	15.2	17.5	2.3		MST	15.00m PLASTIC				
216	0	0.5	0.5		MG		6m casing			
	0.5	11.0	10.5		SC + GR + B					
	11.0	12.5	1.5		SST					
	12.5	15.0	2.5		MST	12.00m PLASTIC				
223	0	0.5	0.5		MG					
	0.5	6.5	6.0		SC + GR					

Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....	Standing Times.....(hrs)
Core Moves.....(No)	Open Hole.....m	Core Liner.....m	Breakdown.....2 HRS REPAIRS / HWS BARNICK.	Remarks.....
Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)		
YES / NO	Corking.....m	Installation.....m		



No: 08760A

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Date

Diameter.....Ø

Well Casing.....m

Well Screen.....m

Gravel.....m

Bentonite.....m

Gas Bung.....(No)

End Cap.....(No)

Cover Type RAISED / FLUSH

Water Level.....m

Remarks.....

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Contract Name NEATH ABBEY SCHOOL

Contract No

Date 5.3.20Sheet 1 of 1 Working Day 6

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client BAM NOTTALL

Order No

Drill Crew C. JONESRig Type KLEMM

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
226	0	0.5	0.5		MG		7.5m Casing 12.00m	Plastic		
	0.5	11.5	11.0		SC + GR + B					
	11.5	15.0	3.5		MST					
218	0	0.4	0.4		MG		9m Casing 11.00m	Plastic		
	0.4	9.5	9.1		SC + GR + B					
	9.5	10.3	0.8		MST					
	10.3	11.1	0.8		COAL + MST P					
	11.1	12.0	0.9		MST					
	12.0	15.0	3.0		SST					
225	0	0.5	0.5		MG		6m Casing 13.00m	Plastic		
	0.5	12.5	12.0		SC + GR + B					
	12.5	15.5	3.0		MST					
224	0	0.5	0.5		MG					
	0.5	6.5	6.0		SC + GR					

QUANTITIES

 Site Moves.....(No)
 Bore Moves.....(No)
 Return Moves.....(No)
 Security YES / NO

 Casing.....m
 Open Hole.....m
 W. Samples.....m
 Corking.....m

 Core Boxes.....(No)
 Core Liner.....m
 SPT/CPT.....(No)
 Installation.....m

Fixed Plant.....

Standing Times.....(hrs)

Breakdown 2.5 HRS x 2 HYDRAULIC P.OCT.....(hrs)
 Diameter.....Ø
 Well Casing.....m
 Well Screen.....m
 Gravel.....m
 Bentonite.....m
 Gas Bung.....(No)
 End Cap.....(No)
 Cover Type RAISED / FLUSH
 Water Level.....m
 Remarks.....


Certificate No: 08750A

Signed
by ApexSigned
by Client

Date

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Contract Name NEATH ABBEY SCHOOL

Contract No

Date 4.3.20Sheet 1 of 1 Working Day 5

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client BAM NUTTALL

Order No

Drill Crew C. JONESRig Type KLEMM

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS
236					PLASTIC TO 14.00m		Borehole
234	0 0.5 13.8	0.5 13.8 17.0	0.5 13.3 3.2		MG SC + GR + B MST / SST	WET 1.7m CASING 13.50m PLASTIC 15.00m	
233	0 0.8 14.0	0.8 14.0 17.0	0.8 13.2 3.0		MG SC + GR + B MST SST	WET 1.7m CASING 12.00m PLASTIC 15.00m	
232	0 0.7 13.9	0.7 13.9 17.0	0.7 13.2 3.1		MG SC + GR + B MST SST	WET 1.1m CASING 13.50m PLASTIC 15.00m	

QUANTITIES

Site Moves.....(No) Casing.....m Core Boxes.....(No) Fixed Plant.....
 Bore Moves.....(No) Open Hole.....m Core Liner.....m
 Return Moves.....(No) W. Samples.....m SPT/CPT.....(No) Standing Times.....(hrs)
 Security YES / NO Corking.....m Installation.....m Breakdown.....(hrs)

Diameter.....Ø
 Well Casing.....m
 Well Screen.....m
 Gravel.....m
 Bentonite.....m
 Gas Bung.....(No)
 End Cap.....(No)
 Cover Type **RAISED / FLUSH**
 Water Level.....m
 Remarks.....

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by Client

Date

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Contract Name

Contract No

Date

Sheet 1 of 1

Working Day

Bore Hole

Top Depth

Base Depth

Thickness

Recovery

Strata Description

Standing Time — Reason

INSTALLATION DETAILS

Borehole

B.H.

235

CASE to 13.5
 0.00 0.30 0.30
 0.30 13.20 12.90
 13.20 17.00 3.80

Plank to 13.5

TAR/fly
 SCGT + B
 MST/SS

B.H.

236

CASE to 13.5
 0.00 0.30 0.30
 0.30 13.00 12.70
 13.00 16.00 3.00

TAR/fly
 SCGT + B
 MST/SS

QUANTITIES

Site Moves.....(No)

Bore Moves.....(No)

Return Moves.....(No)

Security YES / NO

Casing.....m

Open Hole.....m

W. Samples.....m

Coring.....m

Core Boxes.....(No)

Core Liner.....m

SPT/CPT.....(No)

Installation.....m

Fixed Plant.....

Standing Times.....(hrs)

Breakdown.....(hrs)

Diameter.....Ø

Well Casing.....m

Well Screen.....m

Gravel.....m

Bentonite.....m

Gas Bung.....(No)

End Cap.....(No)

Cover Type RAISED / FLUSH

Water Level.....m

Remarks



Certificate No: 067504

Signed by Apex

G.F.

Signed by Client

Date

Client

Order No

Drill Crew

Rig Type

APEX
DRILLING
SERVICES
DAILY DRILLING LOG
Tel: 01656 749149
E-mail: admin@apex-drilling.com

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Contract Name

Contract No

Date

Sheet 1 of 1

Working Day

3

APEX
DRILLING
SERVICES
DAILY DRILLING LOG
Tel: 01656 749149
E-mail: admin@apex-drilling.com

Client

Order No

Drill Crew

Rig Type

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS		
220	Case to			15m			Borehole		
	0.00	0.30	0.30		TAE/ae/R11.				
	0.30	14.50	14.20		SC+G				
	14.50	15.30	0.80		MST				
	15.30	18.30	3.00		SST.				
	Plastic to 15.5m								
BH	Case to								
219	0.00	0.30	0.30		TAE/hil				
	0.30	10.60	10.30		SCG+B.				
	10.60	14.30	3.70		MST				
	14.30	15.00	0.70		SST.				
	Plastic to 12m								

QUANTITIES

Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....
Bore Moves.....(No)	Open Hole.....m	Core Liner.....m	
Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)	Standing Times.....(hrs)
Security YES / NO	Coring.....m	Installation.....m	Breakdown.....(hrs)

Diameter.....Ø
 Well Casing.....m
 Well Screen.....m
 Gravel.....m
 Bentonite.....m
 Gas Bung.....(No)
 End Cap.....(No)
 Cover Type RAISED / FLUSH
 Water Level.....m
 Remarks.....



Signed by Apex

G.F.

Signed by Client

Date

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Contract Name ABBEY SCHOOL - NEATH

Contract No

Date 28-2-20

Sheet 1 of 1 Working Day ②

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149
E-mail: admin@apex-drilling.com

Client BAM NUTTALL

Order No

Drill Crew C. JONES, M. ABBOT

Rig Type KLEMM

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
							Borehole			
<u>229</u>	<u>0.00</u>	<u>0.50</u>	<u>0.50</u>		<u>M-G</u>	<u>CASE TO 9MT</u>				
	<u>0.50</u>	<u>9.20</u>	<u>8.70</u>		<u>SC + GR + Boulders</u>	<u>Plastic 10MT</u>				
	<u>9.20</u>	<u>15.00</u>	<u>5.80</u>		<u>MST / SST</u>	<u>Wet @ 1.4mt</u>				
<u>228</u>	<u>0.00</u>	<u>0.50</u>	<u>0.50</u>		<u>M-G</u>	<u>CASE TO 12MT</u>				
	<u>0.50</u>	<u>11.00</u>	<u>10.50</u>		<u>SC + GR + Boulders</u>	<u>Plastic 12MT.</u>				
	<u>11.00</u>	<u>15.00</u>	<u>4.00</u>		<u>MST / SST</u>	<u>Wet @ 1.4mt</u>				
<u>227</u>	<u>0.00</u>	<u>0.50</u>	<u>0.50</u>		<u>M-G</u>	<u>CASE TO 12MT</u>				
	<u>0.50</u>	<u>11.80</u>	<u>11.30</u>		<u>SC + GR + Boulders</u>	<u>Plastic 13mt</u>				
	<u>11.80</u>	<u>14.50</u>	<u>2.70</u>		<u>MST</u>					
	<u>14.50</u>	<u>15.00</u>	<u>0.50</u>		<u>SST</u>	<u>Wet @ 1.5mt</u>				

QUANTITIES

Site Moves.....(No) Casing.....m Core Boxes.....(No) Fixed Plant.....
Bore Moves.....(No) Open Hole.....m Core Liner.....m
Return Moves.....(No) W. Samples.....m SPT/CPT.....(No) Standing Times.....(hrs)
Security YES / NO Coring.....m Installation.....m Breakdown.....(hrs)

Diameter.....Ø
Well Casing.....m
Well Screen.....m
Gravel.....m
Bentonite.....m
Gas Bung.....(No)
End Cap.....(No)
Cover Type RAISED / FLUSH
Water Level.....m
Remarks.....



Signed by Apex C.J.

Signed by Client Date

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Contract Name NEATH ABBEY SCHOOL

Contract No

Date 27-2-20Sheet 1 of 1 Working Day 1

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149
E-mail: admin@apex-drilling.com

Client BAM NUTTALL

Order No

Drill Crew C. JONESRig Type KLEMM

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
222	0	0.5	0.5		MG	WET 1.20m	Borehole			
	0.5	8.2	7.7		SC + GR + B					
	8.2	15.0	6.8		MST / SST	7.50m CASING 9m PLASTIC				
221	0	0.5	0.5		MG	WET 1.7m				
	0.5	12.0	11.5		SC + GR + B					
	12.0	15.0	3.0		SST	12.0m CASING 13.0m PLASTIC				

QUANTITIES

Site Moves.....(No) Casing.....m Core Boxes.....(No) Fixed Plant.....
 Bore Moves.....(No) Open Hole.....m Core Liner.....m
 Return Moves.....(No) W. Samples.....m SPT/CPT.....(No) Standing Times.....(hrs)
 Security YES / NO Corking.....m Installation.....m Breakdown.....(hrs)

Diameter.....Ø
 Well Casing.....m
 Well Screen.....m
 Gravel.....m
 Bentonite.....m
 Gas Bung.....(No)
 End Cap.....(No)
 Cover Type RAISED / FLUSH
 Water Level.....m
 Remarks



Certificate No: 007504

Signed
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Signed
by Client

Date

Blue - Client's Copy Yellow - QS Copy White - Site Copy

APPENDIX N – GROUTING RECORDS

Contract Name NEATH ABBEY SCHOOL
 Contract No 12328
 Date WED 15-7-2020
 Sheet 1 of 1 (TOTALS)

APEX

DRILLING SERVICES

Tel: 01656 749149

DAILY GROUT LOG

Working Day No

Grout ③

Client BAM NUTTALL
 Order No Rhys Lewis
 Driller H. WILLIAMS A. REES
 Crewman M. PAYNE C. PATTISON



Certificate No: 08750A

Hole No	Fly/Ash	Sand	CEMENT	Chippings	TOTAL	REMARKS	MATERIALS received during the day		
							Item	Quantity	Delivery Ticket No
229			-300		-300	Full =			
230			-300		-300				
231			-250		-250				
232			-300		-300				
233			-300		-300				
234			-300		-300				
235			-275		-275				
236			-275		-275				
237			-250		-250				
238			-250		-250				
239			-250		-250				
TOP UP ALL BH'S			-200						
DEMobilise ALL PLANT & EQUIPMENT. RE - SECURE SITE.									

Totals used			3.250	
Previous Totals			7.300	
Totals to date			10.550	

Signed by Apex H. Williams
 Date 15/7/2020
 Signed by Client

MATERIALS DELIVERED				
	A Since Contract commenced (b/f from previous sheet)	B During day	C = A + B Running Totals	D Stock on site at end of day
Fly/Ash				
Sand				
Cement	11.000	NIL	11.000	0.450
Chippings				

Contract Name NEATH ABBEY SCHOOL
 Contract No 12328
 Date TUES. 14.7.2020
 Sheet 1 of 1

APEX

DRILLING SERVICES

Tel: 01656 749149

DAILY GROUT LOG

Working Day No

GROUT ②

Client BAM NUTTALL
 Order No Rnys Lewis
 Driller H. Williams A. REES
 Crewman M. PAYNE C. PATISON



Certificate No: 08750A

G R O U T I N G						REMARKS	MATERIALS received during the day		
Hole No	Fly/Ash	Sand	Cement or Chert	Chippings	TOTAL		Item	Quantity	Delivery Ticket No
210			0.275		0.275	Full			
211			0.250		0.250				
212			0.250		0.250				
213			0.250		0.250				
214			0.250		0.250				
215			0.250		0.250				
216			0.250		0.250				
217			0.250		0.250				
218			0.250		0.250				
219			0.250		0.250				
220			0.825		0.825				
221			0.250		0.250				
222			0.250		0.250				
223			0.250		0.250				
224			0.250		0.250				
225			0.275		0.275				
226			0.250		0.250				
227			0.250		0.250				
228			0.250		0.250				

	MATERIALS DELIVERED			
	A Since Contract commenced (b/f from previous sheet)	B During day	C = A + B Running Totals	D Stock on site at end of day
Totals used				
Previous Totals				
Totals to date				

Signed by Apex	<u>H. Williams</u>
Date	<u>14/7/2020</u>
Signed by Client	

Fly/Ash				
Sand				
Chippings				

Contract Name NEATH ABBEY SCHOOL
 Contract No 17328
 Date MON 13 - July - 2020
 Sheet 1 of 1

APEX

DRILLING SERVICES

Tel: 01656 749149

DAILY GROUT LOG

Working Day No

GROUT ①

Client BAM NUTTALL
 Order No Rhys Lewis
 Driller H. Williams A. Rees
 Crewman M. Payne C. Pattison



Certificate No: 08750A

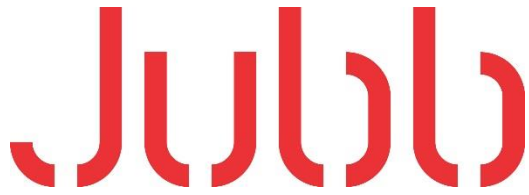
GROUTING						REMARKS	MATERIALS received during the day		
Hole No	Fly/Ash	Sand	Cement or Chem POZZAMENT Tonnes	Chippings	TOTAL		Item	Quantity	Delivery Ticket No
						MOBILISE TO SITE: -			
						1 - COMPRESSOR, 1 GROUT PAIL,	POZZAMENT	11.000	A202-0014893
						3 x JBC, 2 x 500 GALLON			
						WATER BOUSCH, 2 x 4WD			
						VEHICLE. WELSH WATER STANDPIPE.			
201			250		250	full - 			
202			250		250				
203			250		250				
204			275		275				
205			275		275				
206			325		325				
207			275		275				
208			275		275				
209			250		250				

Totals used			2.425	
Previous Totals			NIL	
Totals to date			2.425	

Signed by Apex H. Williams
 Date 13/7/20
 Signed by Client

MATERIALS DELIVERED				
	A Since Contract commenced (b/f from previous sheet)	B During day	C = A + B Running Totals	D Stock on site at end of day
Fly/Ash				
Sand				
POZZAMENT	NIL	11.000	11.000	8.575
Chippings				

APPENDIX O – WELL/MINE ENTRY REPORT (TECHNICAL NOTE #01)



Title: Well/Mine Entry Report

Date: 12/03/2020

I. Introduction

BAM Construction are proposing to redevelop the recently demolished Dŵr y Felin Comprehensive School site off The Drive, in Neath, South Wales, with the construction of a two-story primary school development, built on two terraces.

On recent submission of planning application for the site, the Coal Authority response letter (Ref: Letter from The Coal Authority, Planning Application : P2019/5679, dated 7 January 2020, from Deb Roberts – Planning Liaison Manager) indicated the requirement to locate and characterize a mine entry / well, which based on historical records is known to be located along the western boundary of the site.

This technical note documents the findings of an investigation. The scope of works was to identify the location and characterization of a potential well / mine entry / adit as instructed by the Coal Authority to complete additional investigation works.

Figure 1 provides a plan showing the current building footprint and the expected location of the mine entry / well based on historical information available.

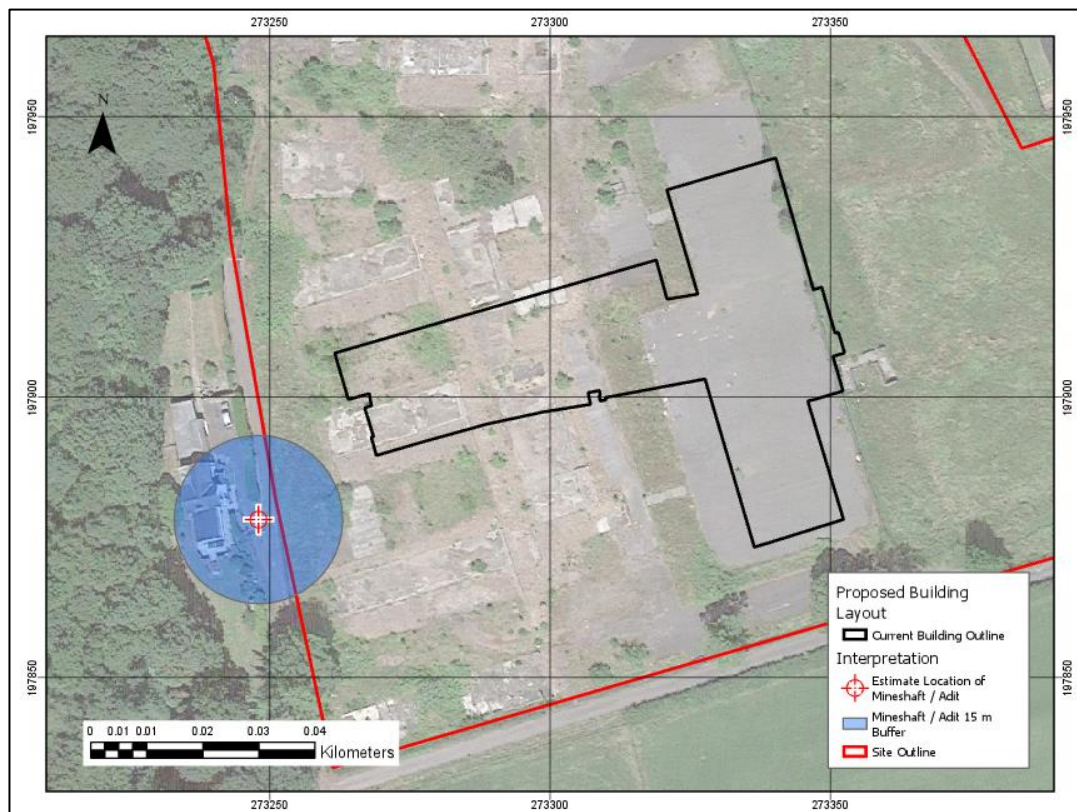


Figure 1. Site Location Plan - Current Building Layout and estimated location of mineshaft
19264 Abbey School, Neath

a. Previous Investigation Works

A Phase 1 Geo-environmental desk study and Phase 2 Geo-environmental site investigation were reported on in 2014 by Integral Géotechnique (Wales) Limited.

As part of the Phase 1 reporting (Ref: 11437/CF/14/SI/Rev A, dated December 2014) and Non-residential Coal Authority Mining Report (Ref: L/ICE/D59/2012, dated Jan 2013), a 'disused adit or mineshaft' was indicated to be present along the western boundary of the site. Based on historical records, the location of the well / mine entry was estimated to be approximately 273,257E, 197,881N.

Jubb carried out an additional phase of ground investigation for determining ground conditions across the site, to investigate the presence/absence of mine workings under the proposed development footprint. At this stage, the location of the mine adit did not form part of the scope of works.

b. Historical Information Review

A search of publicly available information and information supplied by the Coal Authority has been carried out by Jubb. The findings have been summarised in Table 1 below:

Date	Source	Comments
1869	Abandoned Mine Plan No. (SWR1927)	Indicated as a pit along the western site boundary.
1888 – 1913	Ordnance Survey 6 Inch Series	Indicated as a well at 273,253E, 197,884N approximately along western site boundary.
1892 – 1914	Ordnance Survey 25 Inch Series	Indicated as a well at 273,258E, 197,881N approximately 4 m within the site boundary.
2013	Coal Authority Records	Disused Adit or Mineshaft indicated along western site boundary (Ref: 273197-034.

Table 1. Table of historical records of mine entry/well.

The historical maps associated with the above have been provided in Appendix A. The findings indicate the suspected mine adit/well was described as a 'pit' from 1869, located immediately along the western site boundary. By 1888 to 1914, the ordnance survey noted the location as a well, documented within a similar location. In addition, the Coal Authority note the location as a disused adit or mineshaft. The review of historical information is inconclusive as to the use or whether the location is in fact a mineshaft.

II. Well / Mine Entry Investigation

On 21st February 2020, Terra Firma (South) undertook an additional ground investigation to locate and characterize the well / mine entry identified above. The investigation was planned and scoped by Jubb, with Terra Firma being appointed directly by BAM. During the works Kevin Scanlon from Terra Firma, Matthew Temlett from Jubb and Rhys Lewis from BAM were present throughout excavation works.

Figure 2 shows a photograph of the suspected location of the mine entry/well. Currently at this location there is a ~ 2.5 m high brick wing-retaining wall, which retains approximately a ~3 m high embankment, which forms a slight bull-nose of embankment material behind the retaining wall.



Figure 2. View looking north at estimate location of well/mine entry (behind the winged retaining wall an underneath earth embankment).

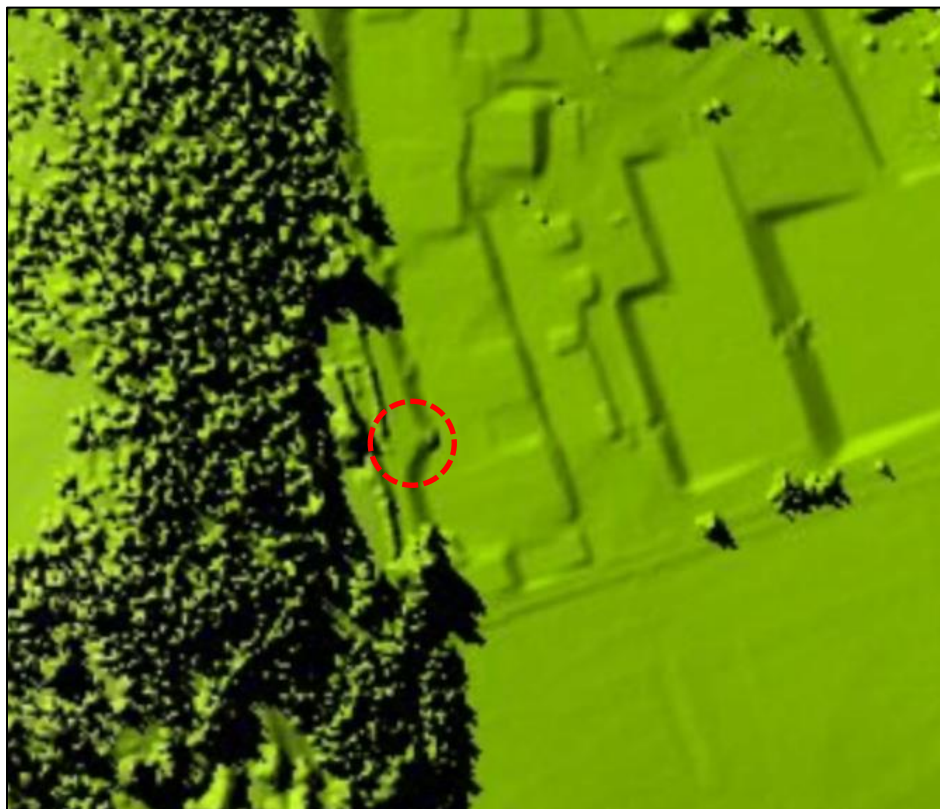


Figure 3. LiDAR DSM 1 m - Indicative Area of Investigation (red circle) - Embankment forms a localised bull-nose behind the brick wing-retaining wall.

Prior to commencing excavation works, the site was scanned for underground services using a CAT scanner. An area of slight surface depression was observed at the top of the embankment (<100 mm depression), which was targeted as a starting point for excavation works.

A JCB 3CX backhoe excavator was used to excavate a trench into the embankment behind the wingwall using a 900 mm grading bucket. A ~3 m wide pit was steadily excavated (at 150 mm increments) to a depth of 2 m below the top of embankment. Additional photographs during the investigation works have been presented in Appendix B.

The mine entry/well location was encountered at this approximate location with the following properties observed and documented:

- Mine entry/well was encountered at 273,254E and 197,881N (present on Figure 5), with the centre of the well located approximately 3 m from the western site boundary and access road;
- The top of the mine entry/well was located approximately 1.9 m below the crest of the embankment;
- The well/mine entry was approximately 2.0 m in diameter (outer diameter) and roughly circular in shape;
- The walls of the well/mine entry were constructed of tabular sandstone blockwork <200 mm in size; and
- The well/mine entry was backfilled with a dark reddish-brown clinker/slag gravel, cobble and boulder backfill, with sub-angular to rounded clasts up to 250 mm in size observed. Voids were observed within the backfilled material.

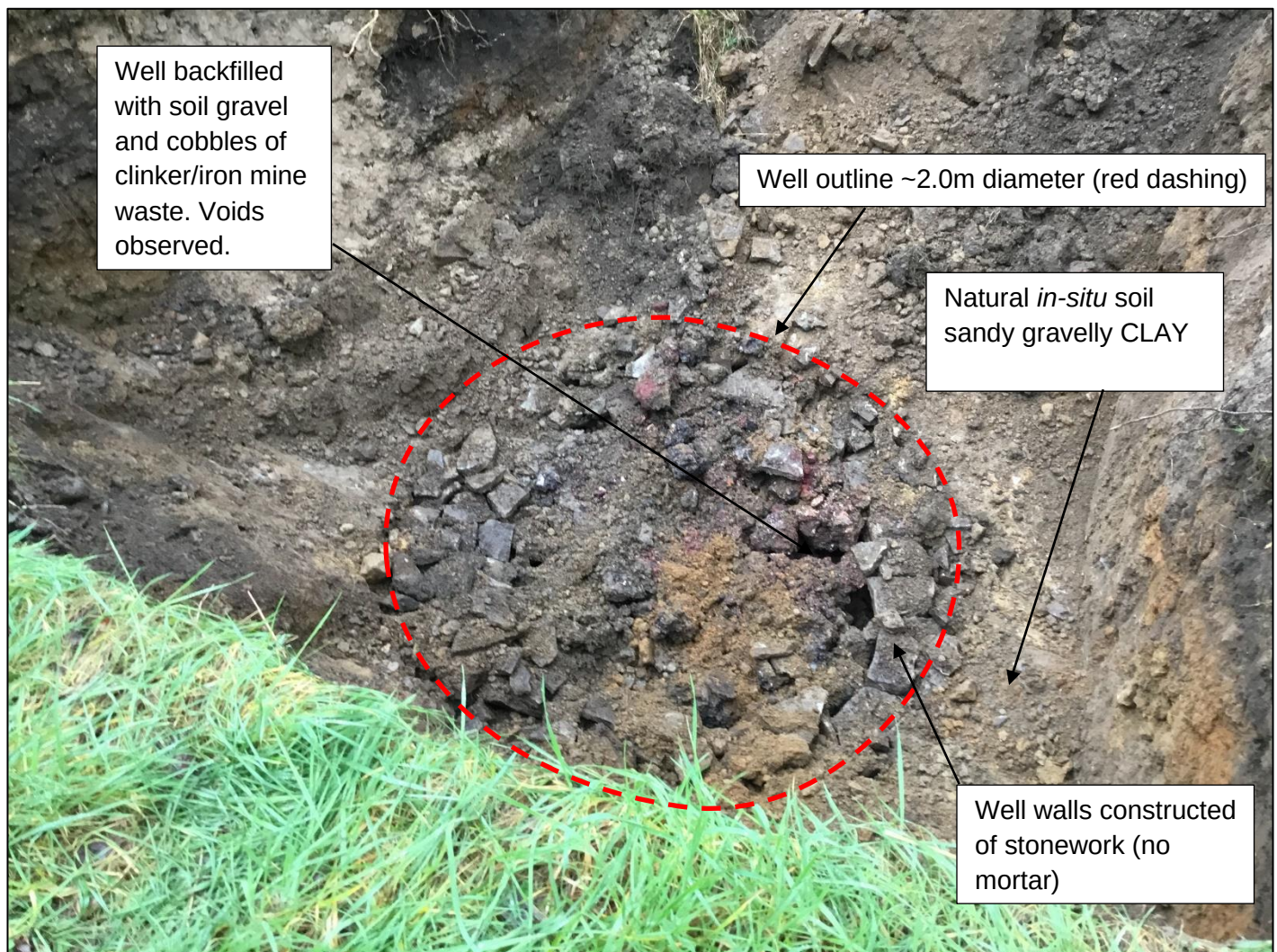


Figure 4. Annotated Photograph of uncovered well/mine entry

On locating the mine adit/well, the feature was measured and photographed prior to backfilling the excavation with excavated material. The location was staked and later surveyed by BAM.

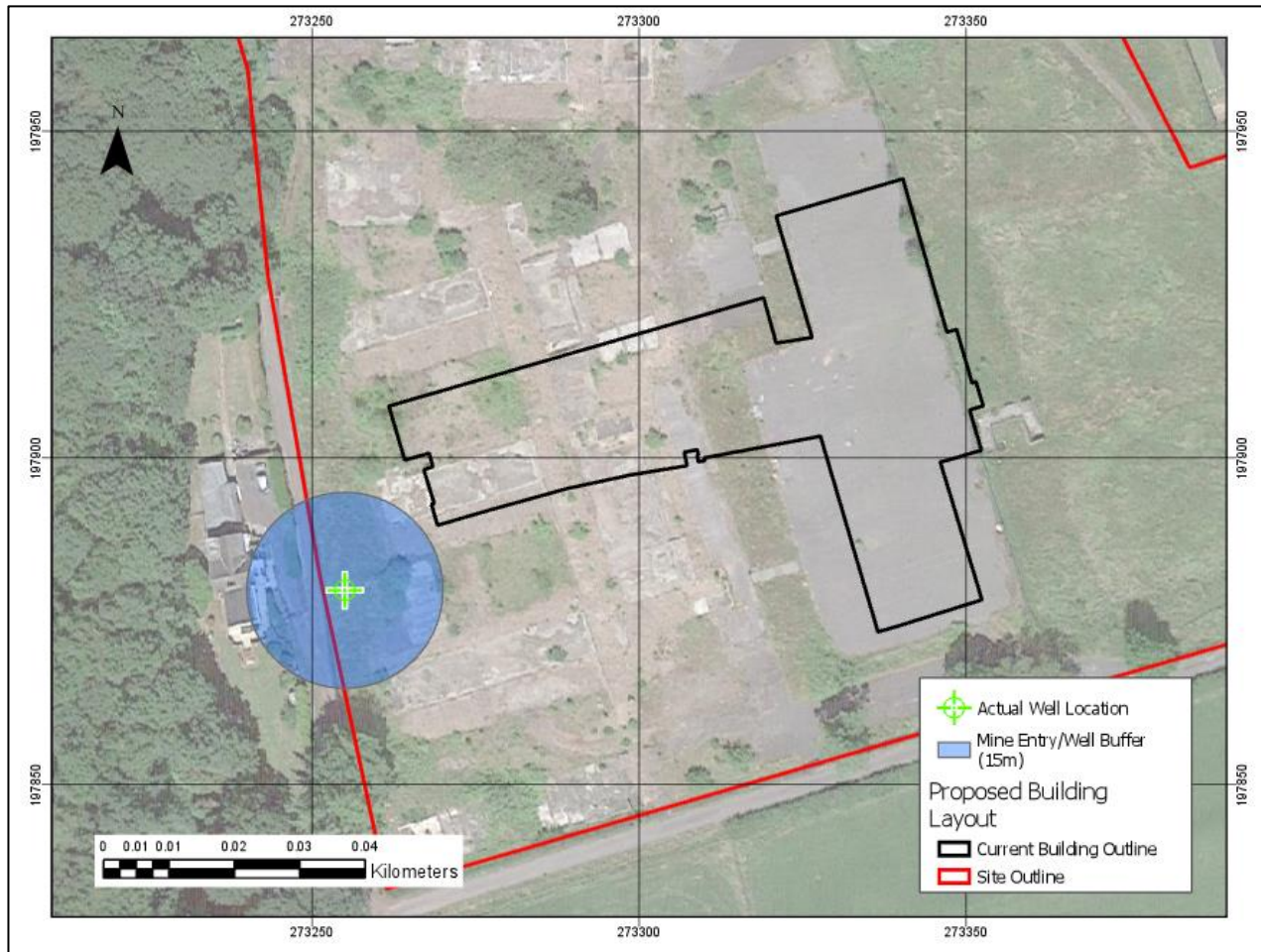


Figure 5. Plan of exact well/mine entry feature location with 15 m buffer

Figure 5 presents the exact surveyed location of the feature identified well/mine entry, which indicates the feature is in excess of a 15 m buffer away from the well centre.

It is likely the existing wing-retaining wall structure was used to protect students of the previous school from interacting with the feature (mine entry/well). However, on defining the exact location of the feature, the wing-retaining wall is currently positioned too far to the south, leaving the northern section of the embankment exposed and unprotected.

In addition, given the nature of the backfilled materials, it is highly likely the backfill material is of variable strength and properties, with voids present throughout. It is also unknown if the entire feature was backfilled consistently with the same material type. There is a risk the well may have been backfilled with degradable material such as tree stumps etc. and as such, the feature will require some remediation to ensure the safety and wellbeing of the end-user.

III. Conclusions and Recommendations

The aim of the investigation was to locate and characterize a known feature at the site. Based on the findings and historical records, the exact nature of the feature is still unknown. However, given the size and shape of the feature, a well is considered the most likely use. The feature was also found to be located in excess of 15 m away from the proposed building location. Therefore, no adjustment to the building location with respect to the well is required.

Although clinker/iron waste backfilling was observed within the feature, the exact nature and extent of backfilling is unknown. Therefore, given the proximity of the feature to the proposed development, it is recommended for the well/mine entry to be plugged/capped as follows:

- Demolition of existing wing-retaining wall structure;
- Excavation of the well location down to approximately proposed design level of the school. Given the proximity of the well and excavation works to the road above, it is likely sheet piling will be required to support the upslope material. Temporary works design will be required prior to completion of these works;
- Capping of the feature with a mass concrete plug – the plug is to be 2 times the diameter of the well (4m diameter), which should be excavated down to the finished ground level of the school building. The concrete plug shall be 75% the thickness of the feature width (1.5 m thickness); and
- Reinstatement of the embankment to form slopes at 1V:2.5H.

A schematic drawing of the works has been provided in Appendix C. This drawing is not to be used in detailed design and a temporary works assessment is required for the temporary works involved in retaining the material upslope of the feature. A detailed capping design will be required. It should also be noted CDM hazards associated with working over mine shafts / wells within unknown backfilling include the risk of sudden collapse without warning. The proposed remediation works should be undertaken by a specialist contractor with experience of mine capping works, who can provide advice on suitable hazard controls and methods of work.

Appendix A – Historical Maps and Plans

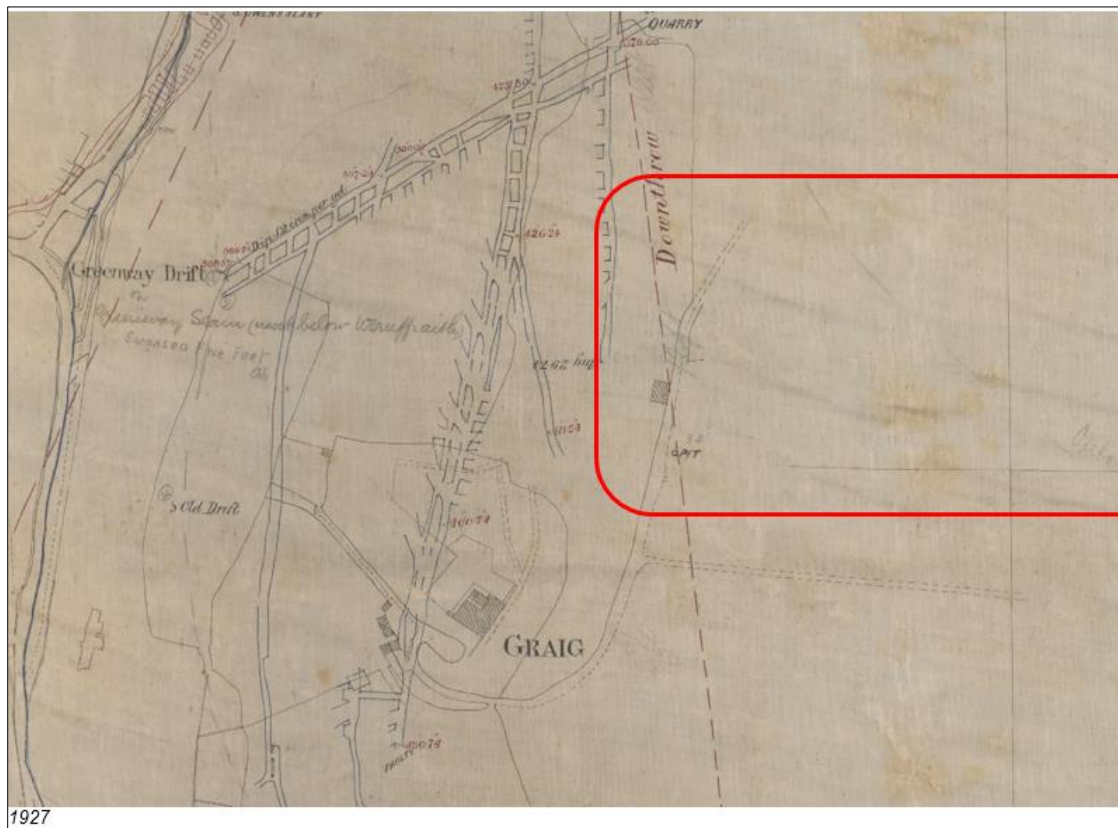


Figure 6. Abandoned Mine Plan No. SWR1927 (dated 1869). Supplied by The Coal Authority (approximate area of interest outlined in red) – Pit feature present.



Figure 7. OS Map Six Inch 1888-1913 (National Library of Scotland) – Feature described as a well

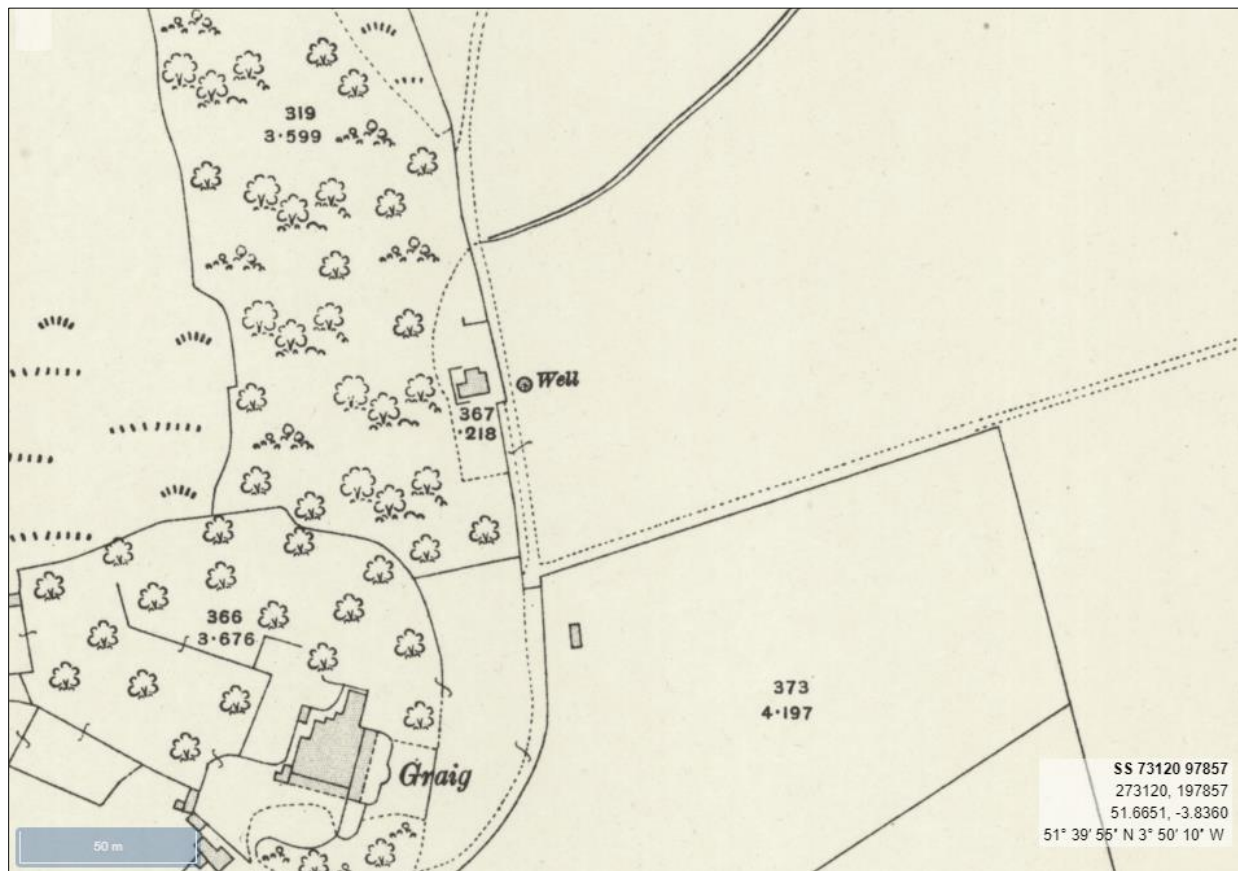


Figure 8. OS Map 25 Inch 1892-1914 (National Library of Scotland) – Feature described as a well

Appendix B – Photographic Record of Investigation



Figure 9. View of wind-retaining wall structure along the western site boundary



Figure 10. View on top of embankment immediately behind winged wall. Slight depression visible from ground surface level.

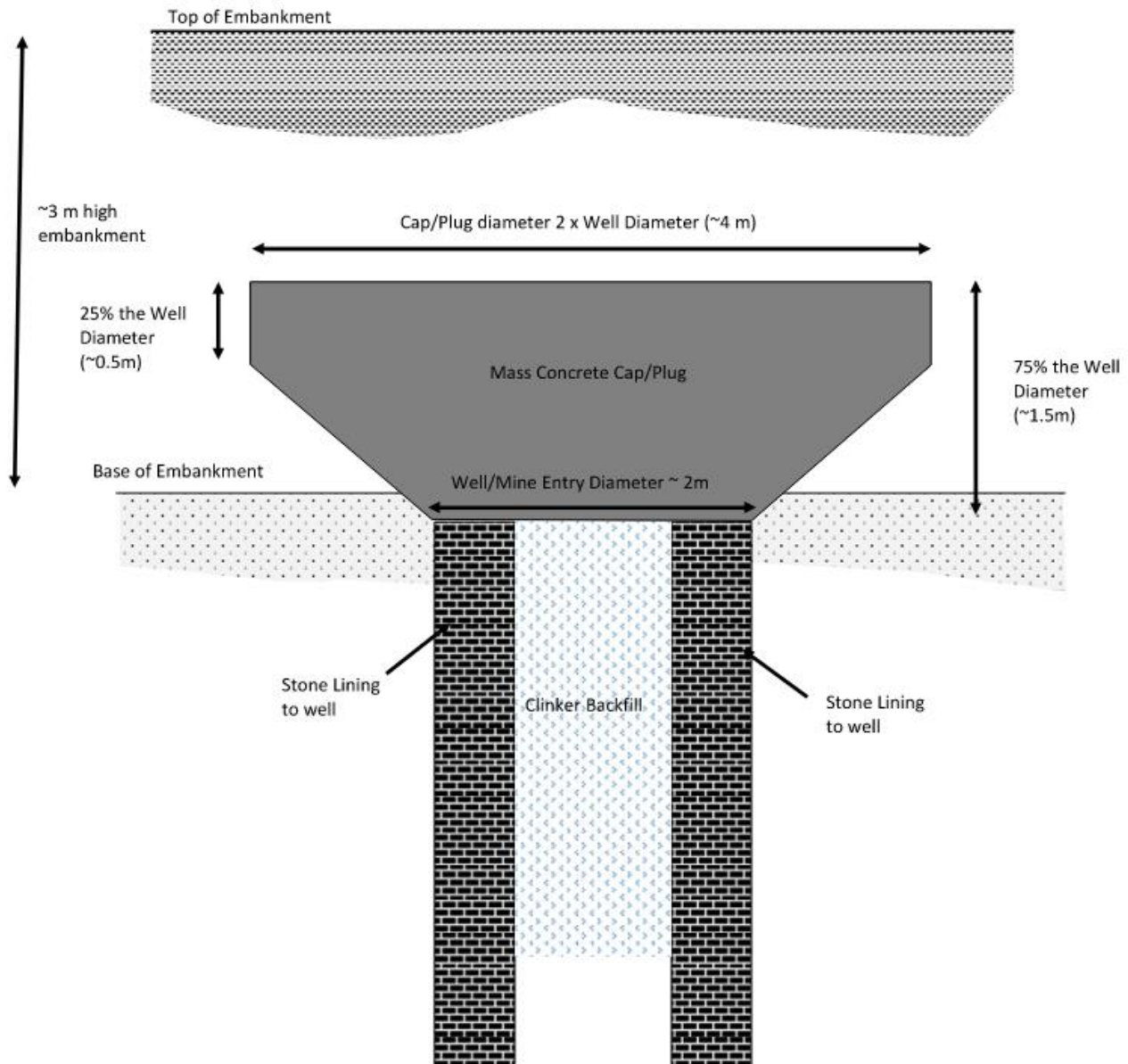


Figure 11. Excavation works, 1 m down. Feature not visible. Residual natural mottled orangish brown sandy gravelly CL:AY visible at base of pit. Boulders and cobbles present in brown topsoil/made ground above possibly from head of well.



Figure 12. Photograph of excavation at 1.9 m depth, with feature perimeter blockwork observed and clinker backfill with voids present.

Appendix C – Schematic Well / Mine Entry Cap / Plug Diagram



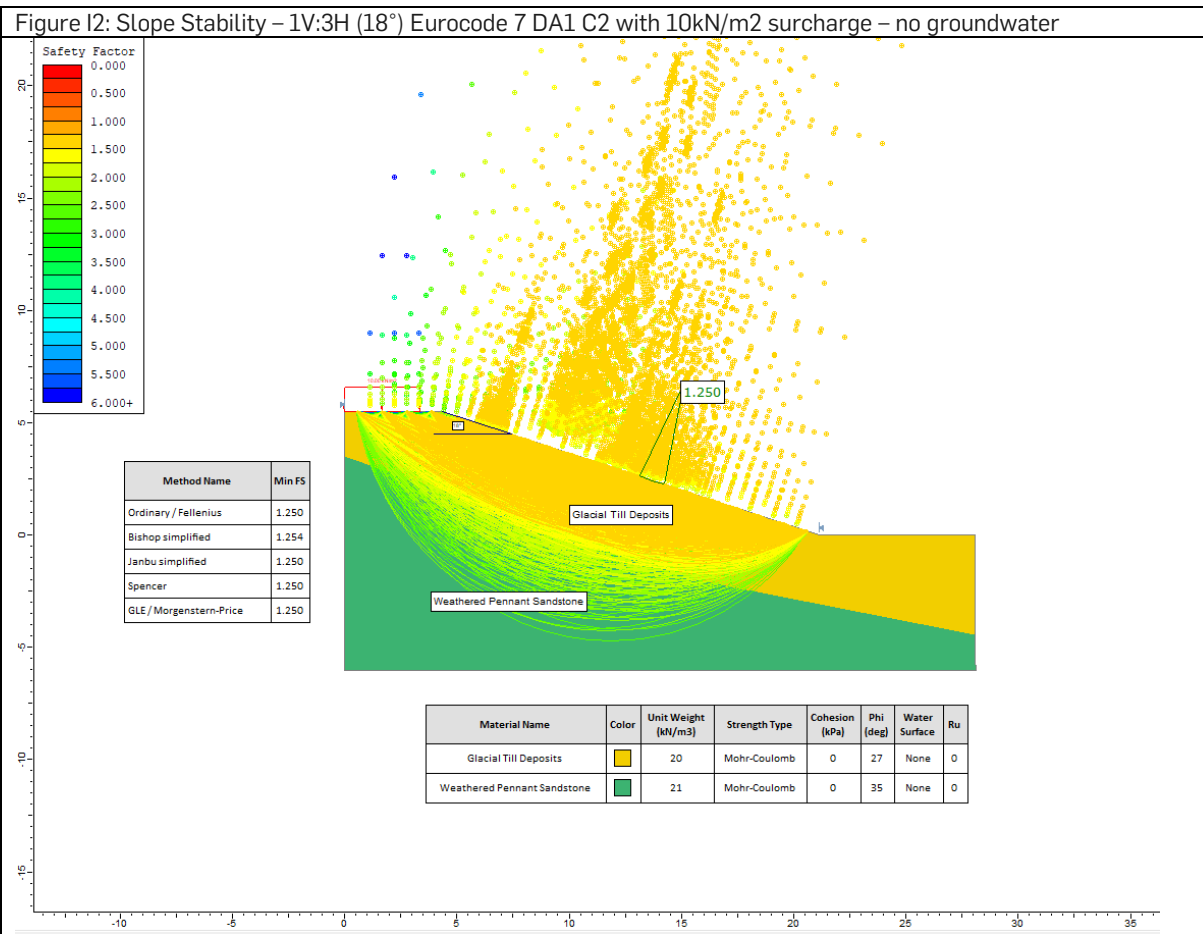
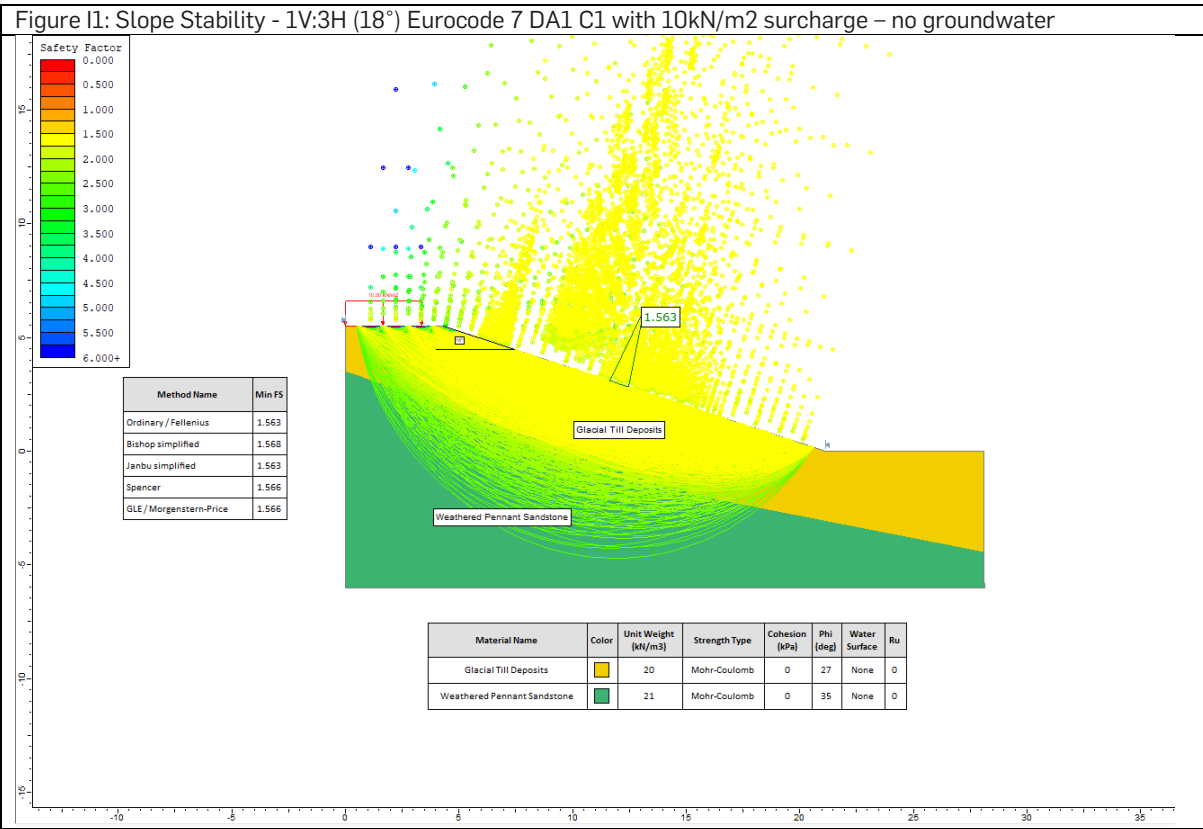
Note: This drawing is indicative and not to be used for construction.

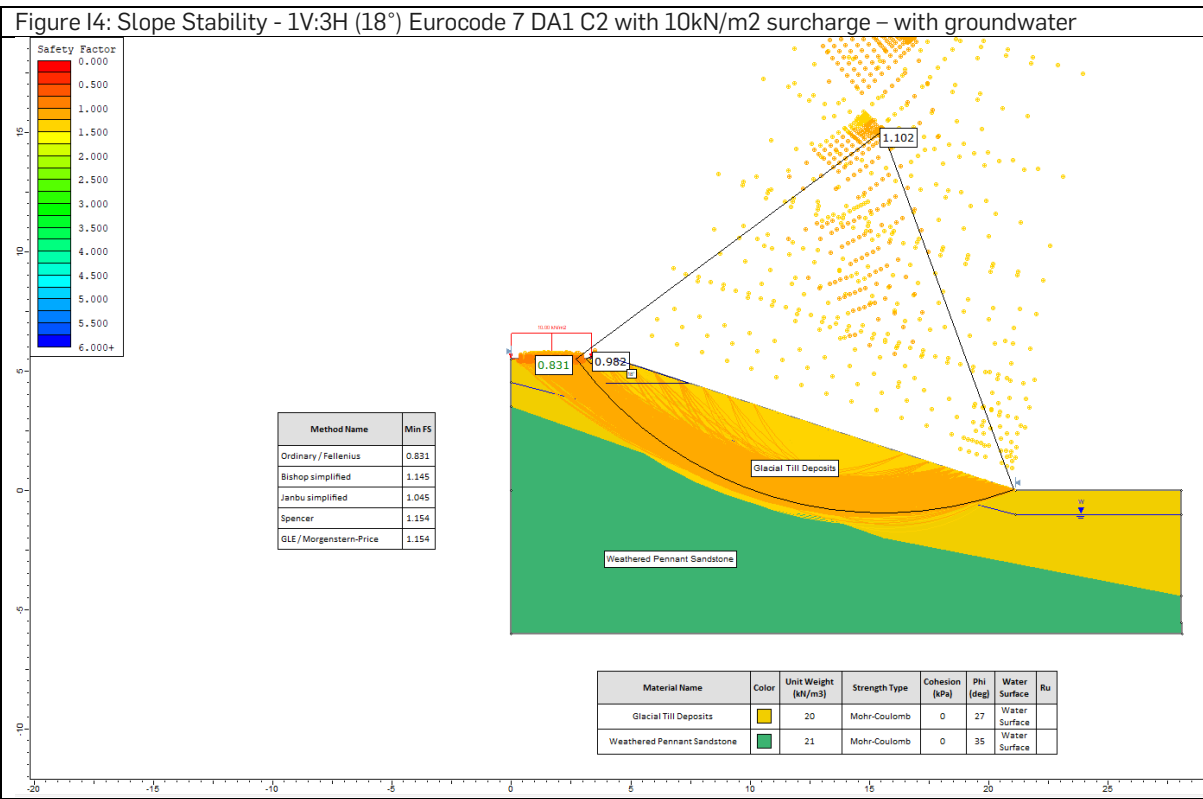
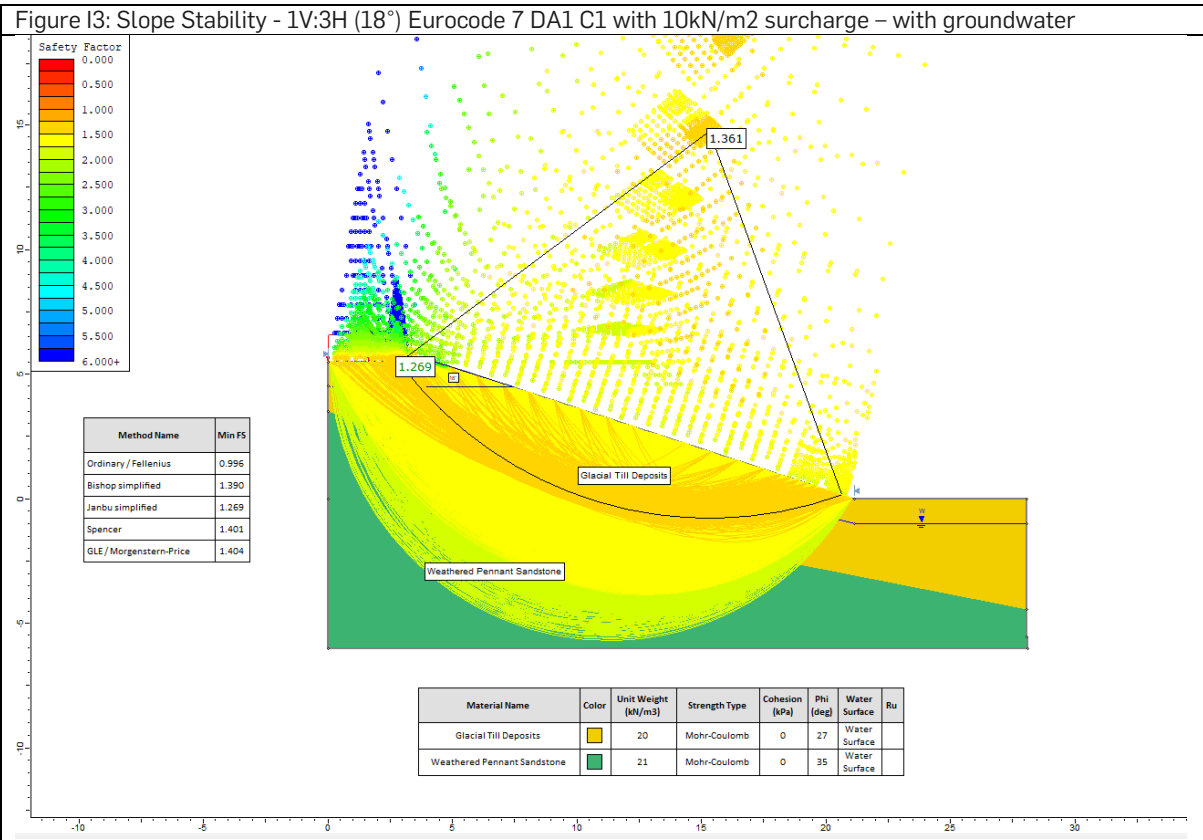
Schematic Well / Mine Entry Cap / Plug Diagram

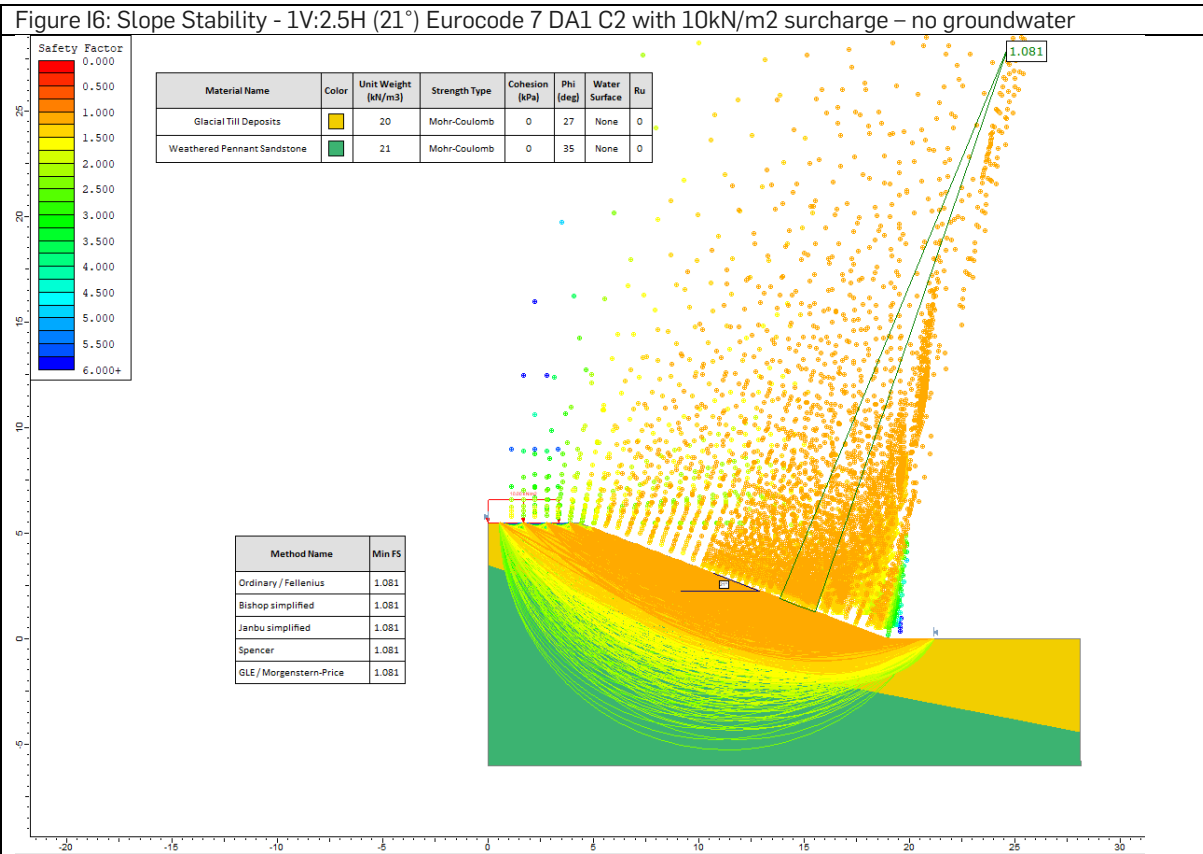
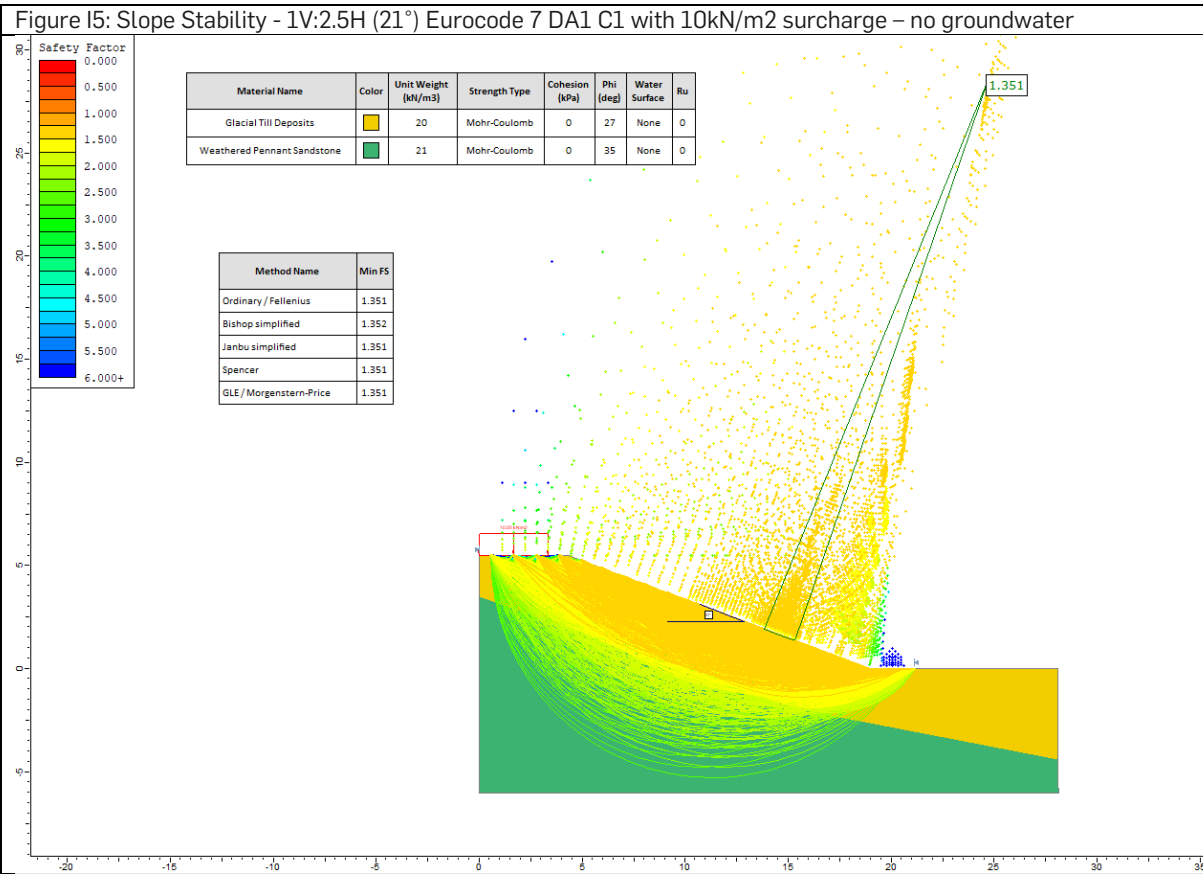
Abbey School, Neath

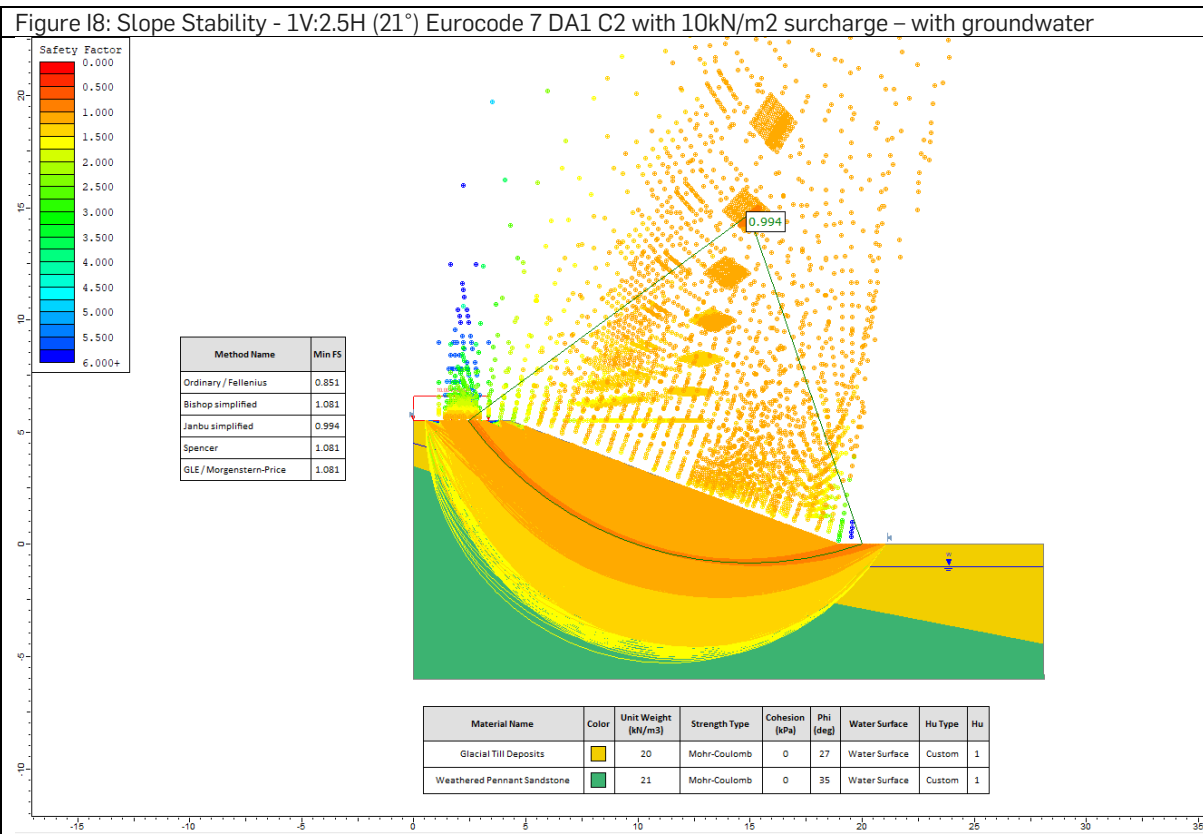
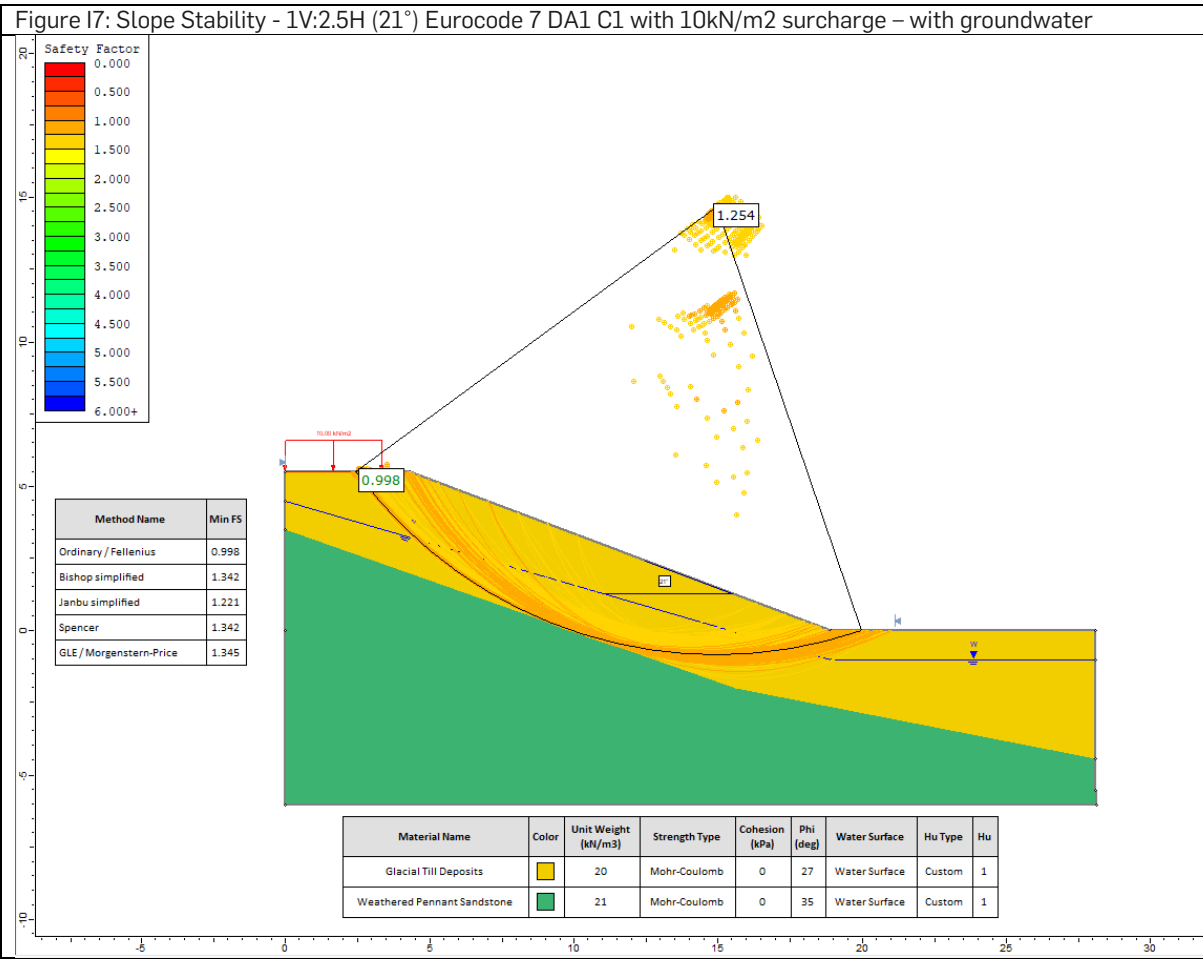


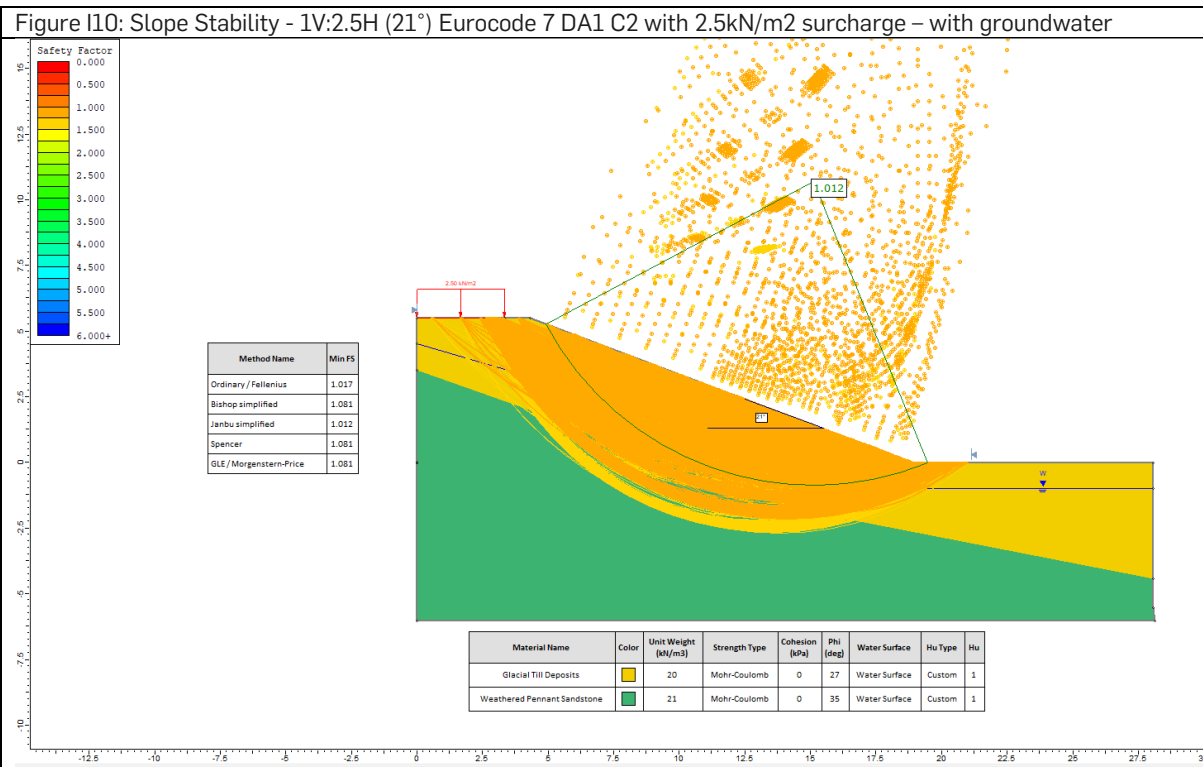
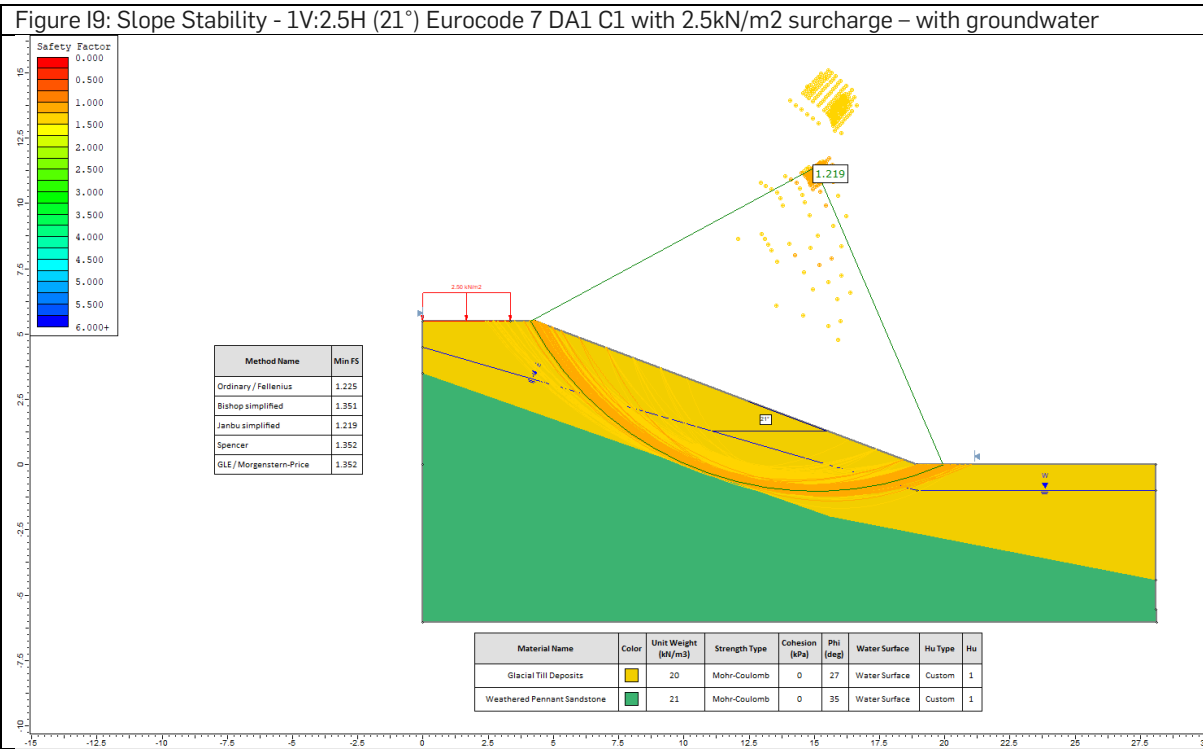
APPENDIX P – SLOPE STABILITY ANALYSIS

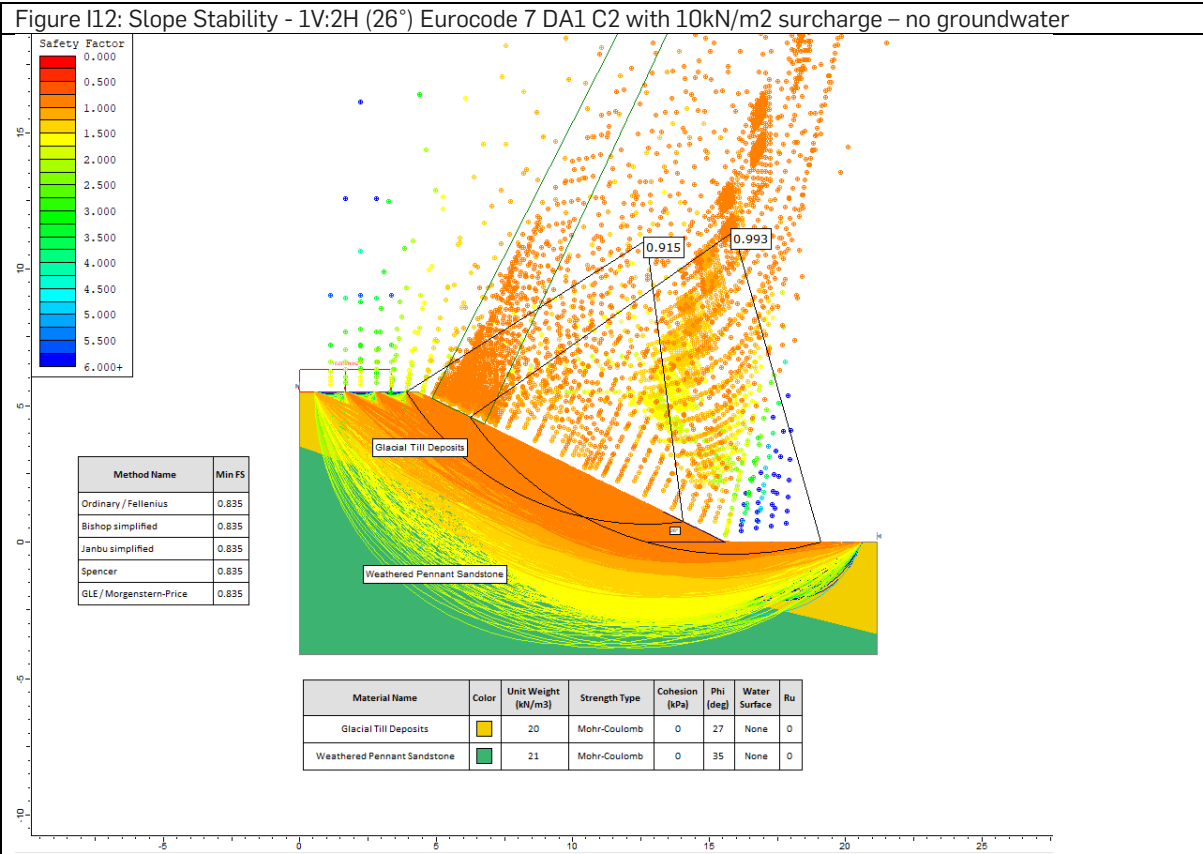
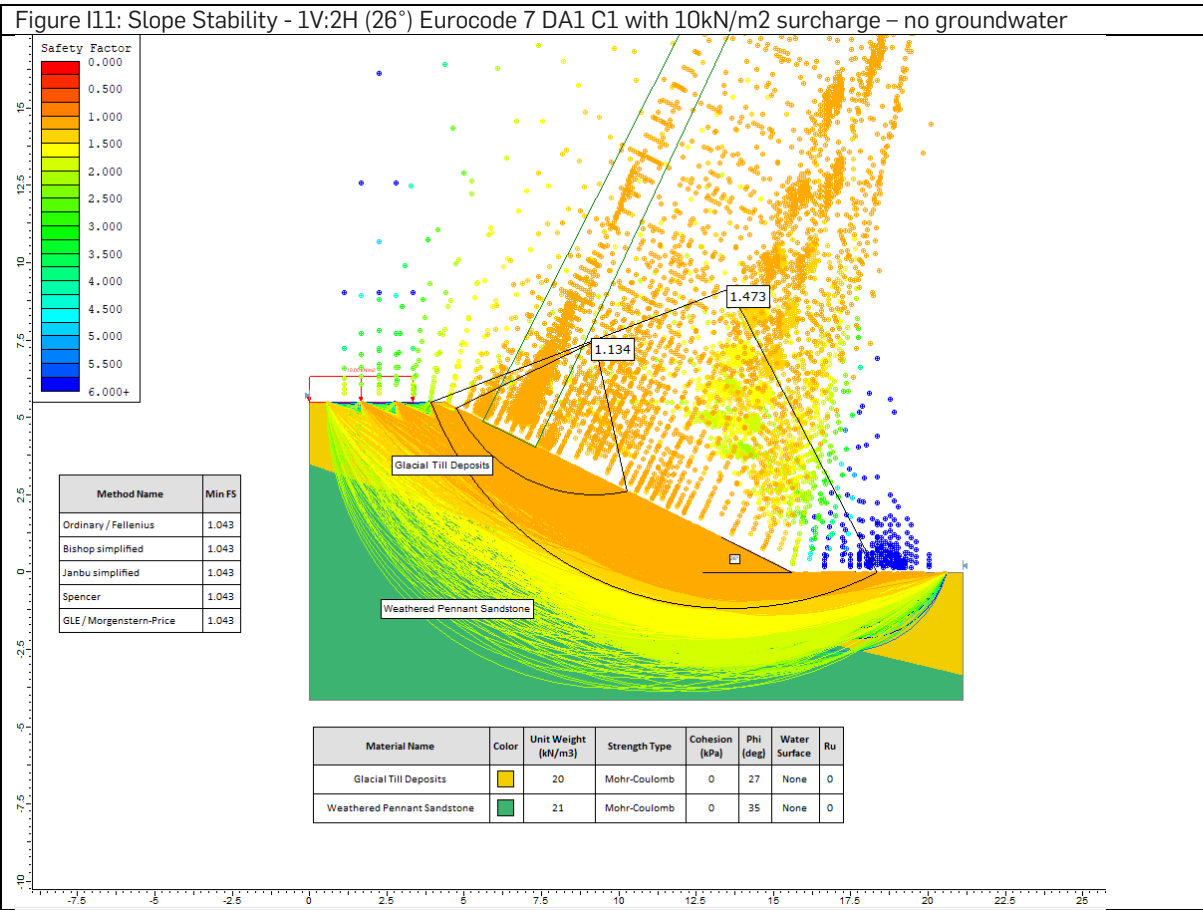












APPENDIX Q – GEOTECHNICAL RISK REGISTER

CATEGORY			RISK ASSESSMENT							CONTROL MEASURES				
REFERENCE No.	CDM – H&S	PROJECT	HAZARD <i>Record the nature of the hazard.</i>	CAUSE <i>Note the conditions that may lead to a hazard causing harm or disruption.</i>	CONSEQUENCE <i>List the consequences, should the hazard come into effect</i>	PROJECT STAGE				CONTROL MEASURES <i>List those measures that you consider may be put in place to mitigate (reduce) both the likelihood and effect of the risk identified.</i>	RESIDUAL RISK RATING			METHOD OF COMMUNICATION <i>List risk communication media additional to this document e.g. drawings.</i>
						PRE-CONSTRUCTION	CONSTRUCTION	OPERATION & MAINTENANCE	DECOMMISSIONING		LIKELIHOOD	EFFECT	RISK RATING	
1	X		Excavations - Collapse/Instability	Excessive Groundwater/ Rainfall Soft Ground Conditions Cuttings too steep/insufficient support. Sloping nature of site. Shallow groundwater.	Damage to Plant and Equipment Death or Serious Injury		X			If required, temporary batter slopes of 1:3 in made ground and 1:2 in cohesive glacial till soils are required.	L	M	L	Ground Conditions Assessment Report
2	X	X	Contamination – Site Soils	Localised elevated metals, PAA and hydrocarbon encountered.	Human Health Issues Increased Disposal Costs	X	X			Ground investigation identified localised hotspot areas.	M	M	M	Ground Conditions Assessment Report
3		X	Aggressive Chemicals (Sulphates)	Sulphate Levels	Degradation of concrete used in the ground. Failure of foundations to meet the required standards.			X		BRE SD1 testing required as part of any GI.	M	M	M	Sulphate section of Ground Conditions Assessment Report
4		X	Groundwater	Shallow perched groundwater.	Inundation of excavations with groundwater.		X			Ground investigation to confirm presence of groundwater. Surface water cut-off drainage required a above development.	L	L	L	Ground Conditions Assessment Report
5		X	Buried Services	Potential underground services.	Damage to services, plant and site personnel.		X			Obtain underground survey prior to construction.	L	M	L	Service drawings. Constraints plan.
6	X		Foundation failure – Ultimate Limit State (Bearing Capacity Failure)	Unknown loadings Degradation of concrete Insufficient depth of foundations	Building collapse/ need to rebuild			X		Determine strength of underlying soils in order to obtain bearing capacity.	L	H	M	Foundation section of Ground Conditions Assessment Report
7	X		Serviceability limit state failure (settlement)	High Plasticity Clays and foundations placed on material types of contrasting strength properties.	Cracking/deformation of slabs			X		PI testing of any clays. Ground investigation to confirm variability of ground conditions.	M	M	M	Foundation section of Ground Conditions Assessment Report
8		X	Obstructions subsurface	Large cobbles/small boulders of sandstone within made ground and glacial till Buried concrete from former building foundations present across the western half of the site.	Unable to excavate through. Increased cost of disposal and earthworks. Material crushing required.		X			Determine ground model based on ground investigation results.	L	L	L	Extent of foundation removal to be fully understood prior to construction. Foundation section of Ground Conditions Assessment Report.

CATEGORY			RISK ASSESSMENT							CONTROL MEASURES				
REFERENCE No.	CDM – H&S	PROJECT	HAZARD <i>Record the nature of the hazard.</i>	CAUSE <i>Note the conditions that may lead to a hazard causing harm or disruption.</i>	CONSEQUENCE <i>List the consequences, should the hazard come into effect</i>	PROJECT STAGE				CONTROL MEASURES <i>List those measures that you consider may be put in place to mitigate (reduce) both the likelihood and effect of the risk identified.</i>	RESIDUAL RISK RATING			METHOD OF COMMUNICATION <i>List risk communication media additional to this document e.g. drawings.</i>
						PRE-CONSTRUCTION	CONSTRUCTION	OPERATION & MAINTENANCE	DECOMMISSIONING		LIKELIHOOD	EFFECT	RISK RATING	
9	X		Ground Gases	Build-up of ground gasses in excavations and sub floor voids from natural soils	Risk of explosion		X			Low risk of ground gas. Gas monitoring results indicate low gas risk.	L	L	L	Phase 1 Desk Study Report. and Ground Conditions Assessment Report.
10	X	X	Underground Mine Workings – Sudden ground collapse	Bell Pits – shallow mine workings infilled with collapsed surficial deposits.	Collapse/damage to buildings due to ground collapse/subsidence.	X	X	X		Observations to be made during construction and excavation of footings to identify sudden changes in ground conditions and indications of bell pits.	M	M	M	Construction Observations. Construction Site Visits during footing excavations. Additional Enabling works.
				Shallow Mine Workings at depth below the proposed development - with insufficient rock roof cover thickness (<12 m for 1 m high void).	Collapse/damage to buildings due to ground collapse/subsidence.	X	X	X		Grid (proof) drilling of entire site to reduce risk of all assets.	L	L	L	Additional Investigation Works
						X	X	X		Grid (proof) drilling under the proposed building footprint and within a determined buffer around the development.	L	L	L	Additional Investigation Works
				Mine Shafts and Adits.	Collapse/damage to buildings due to ground collapse/subsidence.	X	X	X		Development not within 15 m of known mine shaft and adit location to the west of the site.	L	L	L	Ground Conditions Assessment Report and technical note.

APPENDIX R - LIMITATIONS AND EXCEPTIONS

Limitations and Exceptions

1. The advice given in this report is based on the guidelines available at the time of writing.
2. This investigation was conducted so as to generally comply with the relevant principles and requirements of BS10175: 2011 "Investigation of potentially contaminated sites - Code of Practice" and BS 5930:2015 "Code of Practice for Site Investigations".
3. The Client is advised that the conditions observed on site by Jubb Consulting Engineers Ltd (JCE) at the time of the investigation or assessment are subject to change. Certain indicators of the presence of hazardous substances may have been latent at the time of the most recent site reconnaissance or investigation and they may subsequently have become observable. Ground conditions, including geotechnical properties may vary between points of observation, sampling and testing.
4. Certain areas of site had restricted access or were inaccessible due to the presence of in-use buildings, facilities and live services, as identified in this report. These may require further investigation outside the scope of this present investigation.
5. Comments made relating to land gas or groundwater conditions are based on observations made at the time of an investigation unless otherwise stated. Land gas and groundwater conditions may vary as a result of seasonal or other effects.
6. Ground contamination often exists as small discrete areas of contamination and there can be no certainty that any or all such areas have been located, sampled and/or identified.
7. The findings and opinions conveyed in this report are based on information obtained from a variety of sources, including that from previous site investigations and chemical and geotechnical testing laboratories, and which JCE has assumed are correct. Nevertheless, JCE cannot and does not guarantee the authenticity or reliability of the information it has used or cited. JCE can accept no responsibility for inaccuracies within the data supplied by other parties.
8. This report is written in the context of an agreed scope of work between JCE and the Client and should not be used in a different context. In the light of additional information becoming available, improved practices and changes in legislation, amendment or re-interpretation of the assessment or report in whole or part may be necessary after its original submission.
9. This report is provided for sole use by the Client and is confidential to them. No responsibility whatsoever for the contents of the report will be accepted to anyone other than the Client.
10. This report is not a specification for works.
11. JCE believes that providing information about limitations is essential to help the Client identify and thereby manage risks.
12. JCE does not provide legal advice and the advice of the Clients' legal advisors may also be required.
13. JCE retain the copyright in this report and all drawings reproduced in it.