PADDOCK GEO ENGINEERING

# 8-10 Carlton Road, Chiswick, W4 5DY

## REMEDIATION METHOD STATEMENT

**Fornacelli Limited**

**June 2021**

**P20-180rms**


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| **1** | **29/06/2021** | **Stephen Fisk BSc FGS**<br>**Checked and Reviewed By**<br>**Matt Paddock MSc FGS** | **-** |

## 1.0 INTRODUCTION

Paddock Geo Engineering Limited (PGE) was instructed by IML Consulting (UK) Ltd on behalf of Fornacelli Limited; the Client, to prepare a Remediation Options Appraisal and Method Statement (RMS) as Stage 2 Tier 1 and 2 (formerly Phase 3) of a Site Contamination Assessment for the proposed residential redevelopment of the subject site, referred to as 8-10 Carlton Road, Chiswick, W4 5DY.

The subject site is located within an urban area within Chiswick, a district of West London. At the time of the original siteworks the site comprises a roughly rectangular parcel of land with an access road leading to Carlton Road on the east of the site. The site is bound by timber panel fencing with residential properties and their associated private gardens surrounding the site. The demolition and clearance of the site in preparation of construction is currently ongoing at the time of the current reporting.

The study area covers an area of approximately 0.25 hectares, with the centre of the site at approximate national grid reference 520650, 179440 and postcode W4 5DY.

Site Location Plans and an Aerial Photograph are presented in Appendix A.

### 1.1 Terms of Reference

- British Standard (BS) 10175:2011 Investigation of Potentially Contaminated Sites – Code of Practice.
- British Standard (BS) 8485:2015+A1:2019 Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings.
- British Standard (BS) 5930:1999+A2:2010 Site Investigation Code of Practice.
- British Standard (BS) 8576:2013 Guidance on Investigations for Ground Gas - Permanent Gases and Volatile Organic Compounds (VOC)
- CIRIA C665 Assessing Risks Posed by Hazardous Ground Gases to Buildings. CIRIA 2007.
- CLR7 Assessment of Risks to Human Health from Land Contamination, 2002, DEFRA / Environment Agency (*currently withdrawn*).
- CLR8 Potential Contaminants for the Assessment of Land, 2002, DEFRA / Environment Agency (*currently withdrawn*).
- Land Contamination Risk Management (LCRM), Environment Agency; 2020
- Environmental Protection Act: 1990 – Contaminated Land Statutory Guidance, April 2012, DEFRA.
- GPLC1 Guiding Principles for Land Contamination, 2010, Environment Agency.
- PPG23 (PPS23) Planning and Pollution Control (contaminated land aspects), 2002 (*currently withdrawn*).
- SC030114/R1 Verification of Remediation of Land Contamination Guidance Document, 2010, Environment Agency.

## 1.2 Proposed Development

The proposed development scheme involves the demolition of the current single storey day centre building on site and the subsequent development of 9no. three storey residential dwelling, including associated car parking, private gardens and landscaped areas.

As private garden areas are to be included soil contamination exposure characteristics for the proposed development will be analogous to residential with plant uptake.

A proposed development plan is presented within Appendix A.

## 1.3 Overview of Previous Works

A Phase 1 Preliminary Contamination Risk Assessment (PRA) and a Ground Investigation (GI) and Site Contamination Assessment (SCA) have been produced for the site by Paddock Geo Engineering Limited (PGE). The initial PRA was reported in August 2020 with the ground investigation works undertaken at the site undertaken in July 2020 and report in August 2020. An updated GI report was released in October 2020. The previous works are summarised in the following reports.

### 1.3.1 Preliminary Contamination Risk Assessment (PRA)

**P20-180pra - Preliminary Contamination Risk Assessment Report (August 2020), Paddock Geo Engineering Limited (PGE)**

The conclusions of the PRA stated:

> "The preliminary contamination risk assessment has identified complete Contaminant-Pathway-Receptor (CPR) linkages with a maximum **Low to Moderate** risk level from the potential contamination sources and risk drivers identified on the site and surrounding area.
>
> The most significant of these potential source drivers representing the greatest potential to impact the proposed site user (equivalent to residential with plant uptake) is the use of the site as a Laundry from 1920/1935 to 1975. There could be residual contamination such as surfactants (detergents) relating to this use. However, given the age of the Laundry it is considered that the likelihood of residual contamination would be low, especially highly soluble surfactants. Further to this there is a risk deemed from demolition rubble from the redevelopment of the site for its current use which could contain asbestos."
>
> "A further risk is considered from the potentially infilled brick fields located from c.150m north and northeast of the site. It is not clear if these features have been infilled as contouring of some maps show a depression on the site, which is currently a playing field. Therefore, the risk is deemed Low to Moderate.
>
> The proposed residential with plant uptake and private gardens site use will potentially allow the proposed user to come into contact with potential contaminants through direct contact, ingestion and inhalation pathways. There is also a viable pathway for ground gas migration to impact the site.

The Preliminary UXO Threat Assessment indicate that the potential for a UXO hazard to occur on site classified as LIKELY. As such, it is recommended that Detailed UXO Threat and Risk Assessment is undertaken. Clearance by a suitably qualified UXO Engineer should be undertaken for any intrusive works.

Given the discussion above, to prevent 'Significant Possibility of Significant Harm' from potential contamination sources to the proposed future residential site users it is recommended that an intrusive soil investigation be undertaken. We would highly recommend ground gas be included within the next stage of works due to the potential for migration from contaminative sources onto the site.

Further to this, should any unexpected contamination be identified during the future development groundworks, then a suitably qualified and experienced Geo-Environmental Engineer should be consulted and if necessary further assessment should be undertaken."

### 1.3.2 Intrusive Contamination Risk Assessment (SCA)

**P20-180gi_v2 - Site Contamination Risk Assessment Report (October 2021), Paddock Geo Engineering Limited (PGE)**

The main fieldworks were carried between 20th and 22nd July 2020 and comprised the forming of 1no. borehole using cable percussion drilling techniques, 2no. machine excavated Trial Pits, 3no. hand excavated trial pits, 4no. percussion liner sampling boreholes and 6no. insitu CBR test to assess the ground conditions, recover samples, confirm existing foundation arrangements and undertake infiltration testing.

The initial exploratory positions were formed within accessible locations as specified by the Client's Engineer; Pringuer-James, as per their site investigation specification (Ref E19-29-RP-001, dated June 2020).

Addition site works was undertaken on 1st and 2nd October 2020 and comprised the formation of 34no. dynamic probes in a grid over the approximate proposed building footprint.

The Made Ground was highly variably in depth and lateral extend across the site. Made Ground was typically present to depth of between 0.45m (TP1) and 1.0m bgl (WS2) but was much deeper on the north and central eastern areas of site with a maximum depth of 5.50m bgl in BH1 and 4.70m in WS1.

The Made Ground material varied between sandy / gravelly CLAY and clayey sandy GRAVEL with the gravel fraction comprising brick, concrete, ash, glass, plastic, flint, tile and decaying organic matter. The CLAY and GRAVEL strata were also highly variable in insitu strength and compactness, ranging from very soft to stiff for the fine grained deposits and very loose to medium dense for the coarse grained soils.

Deposits of the Langley Silt Member were encountered within trial pits TP1 and TP2, boreholes WS2 and WS4, and within hand excavated trial pits HTP1 and HTP3. Within borehole WS2 and WS4 and TP1 the Langley Silt Member deposits comprised stiff brown dark brown occasionally mottled grey brown to orange brown (slightly sandy) silty CLAY within occasional rootlets,

encountered at a depth of between 0.45m to 1.30m and proven up to a maximum of 2.10m within the boreholes and 3.00m within TP1.

Kempton Park Gravel Member deposits were encountered directly beneath the Made Ground within all of the boreholes BH1 and WS1-WS4 at between 2.0m (WS3) and 5.5m (BH1) depth. The Kempton Park Gravel Member deposits were not encountered within either of the trial pits due to their basal depth not being sufficient. The Kempton Park Gravel Member deposits comprised medium dense to dense orange brown, yellow brown and brown slightly clayey slightly sandy GRAVEL to clayey gravelly SAND. Within boreholes WS3 and WS4 an upper unit of the Kempton Park Gravel Member soils was identified at the top of the strata as a thin band of stiff variably sandy variably gravelly CLAY was encountered at the interface with the Made Ground to 2.10 - 2.80 m and 2.00 - 2.70m depth, respectively.

London Clay Formation deposits were proven within the deeper borehole BH1, at 10.10m depth and comprised stiff blue grey silty CLAY. Such deposits were proven to the base of the borehole at 20.0m depth.

Groundwater was encountered at depth of between 4.00 - 5.50m within the boreholes WS1 - WS4 and BH1. Monitoring within the standpipe positions indicated groundwater levels of between 3.20m and 5.0m depth.

A total of 9no. soil samples were sent to an external laboratory to obtain total soil concentrations for a range of priority contaminants. The suite of analysis was decided based on consultation of the Contamination Exposure Assessment (CLEA) supporting documents and an assessment of the former site and surrounding area land uses carried out for the PRA stage of the investigation.

The suite of testing included:

- Asbestos screen for near surface Made Ground samples with subsequent quantification if identified
- Metals and Inorganic compounds
- Polyaromatic Hydrocarbons (PAH) USPEA Priority 16 Compounds
- Total Petroleum Hydrocarbons (TPH) Screen (C10 – C40 band)

Initial in-house screening levels derived for three band TPH fractions (roughly equivalent to PRO, DRO and Mineral Oil) are employed to initiate fully speciated hydrocarbon analysis to the TPH Committee Working Group Methodology (TPHCWG).

The conclusions of the intrusive contamination assessment carried out as Phase 2 of a Site Contamination Assessment stated:

> "Elevated lead, arsenic, beryllium, phytotoxic copper and PAH indicative compounds levels were identified within the Made Ground from beneath the current building footprint when compared to the conservative Residential with productive planting land use scenario. Volatile contaminants were not identified.
>
> The proposed development is to be residential in nature and to include private garden areas. As such there is a complete pathway between the identified non-volatile contaminants and the proposed end site users via direct dermal contact, ingestion and inhalation.

Statistical analysis of the data set indicated that the 95th percentile upper confidence limit of µ concentrations for the exceeding PAH compounds are due to contamination hotspots, however, given the high degree of variability in depth, consistency and lateral extend of Made Ground on site, it is unlikely to be feasibly to accurately delineate any hotspots of contamination with significant additional testing.

Given this, it is considered that risk reduction or remediation works will be required in proposed open areas of the site to protect the end site users. This would most likely consist of separation of the site users from any contaminated soils through the excavation of soil and importation of clean fill and Topsoil in open and garden areas of the proposed development.

Ground gas monitoring and risk assessment highlighted the site to have calculated gas screening values less than 0.7 l/hr for methane and carbon dioxide, which allows a 'Green' classification employing the NHBC Traffic light system detailed in CIRIA C665 2007 or Characteristic Situation 1 as per the modified Wilson and Card classification as outlined in CIRIA C665 2007.

However, given the maximum carbon dioxide of 13.3% v/v recorded in WS3 and that several other concentrations of Carbon Dioxide were recorded over 10%, this requires that the site classification is increased to 'Amber 2' / Characteristic Situation 2 (CS2) as per the modified Wilson and Card system as per CIRIA C665.

A Remediation Options Appraisal and Method Statement (RMS) would be required by concerned regulatory parties for any soil and ground gas remediation works on the site.

No asbestos fibres were identified within the soil samples subject to screening. However, given the age of the structure, asbestos material may be present within the fabric of the structure that could potentially be disturbed as part of the redevelopment."

"Notwithstanding the above assessment, if any unexpected or previously unidentified contamination is discovered during the site development works, a suitably qualified and experienced person should be contacted so any further assessment required can be carried out."

A copy of the Source – Pathway – Receptor models for the site following the intrusive contamination assessment is presented in Appendix B.

### 1.4 Regulatory Liaison

The Local Planning Authority have not been consulted by PGE; however, it is understood that the previous reportage for the site contamination assessment has been forwarded for comment.

### 1.5 Site History

The available historical maps span a period of 155 years, dating back to 1865. In the earliest historical maps, the site was an agricultural field. Before 1920 a single building labelled as a Laundry was located on the southern half of the site. The Laundry was replaced in

approximately 1979-1987 with a new building which appears to match the present day care facility structure. A small extension to the south-eastern section of the care facility was indicated around 1991-1994.

In the earliest historical maps, the area surrounding site was predominantly rural. By the late 1800s the area around the site was being developed for a mix of residential and commercial land use. A Nursery was indicated adjacent to the south of the site between 1896 to 1915 at which the time area surrounding the site was developed for residential land use.

From approximately 150m north and northeast of the site was a brick works and brick field from before 1896 to around 1935 when it was indicated to be disused and renamed a Playing Fields. The contouring on some of the maps suggest that shallow excavations were not infilled on the site.

## 2.0 PARTIES AND RESPONSIBILITIES

The parties involved in the design, construction and operation of the remediation are categorised according to their roles as follows:

| | |
|---|---|
| **Current Owner** | Fornacelli Limited |
| **Developer** | Fornacelli Limited |
| **Architects / Designers** | Pringuer James Consulting Engineers Ltd (PJCE) |
| **RQA Supervision** | Paddock Geo Engineering Limited (PGE) |
| **Remediation Design** | Paddock Geo Engineering Limited (PGE) |
| **Regulators** | London Borough of Ealing<br>Environment Agency |
| **Analytical Testing Laboratory** | I2 Analytical Limited, Watford<br>(UKAS Accredited Testing Laboratory No. 4041) |
| **Waste Haulier** | TBC |
| **Waste Disposal Site** | TBC |
| **Remediation Contractor** | TBC |
| **Ground Gas Membrane Installer** | TBC |
| **Ground Gas Membrane Verifier** | TBC |

## 3.0 RISK MANAGEMENT OPTIONS APPRAISAL

### 3.1 Introduction

The proposed development (as detailed in Section 2.0) will include the demolition of the current single storey day centre building on site and the subsequent development of 9no. three storey residential dwelling with basements in some, including associated car parking, private gardens and landscaped areas. The nature of the proposed development is considered highly sensitive as the residential garden and soft landscaping areas may at some point be used for the growth of produce for human consumption.

The intrusive investigation and risk assessment phase of the site contamination assessment identified the presence of elevated heavy metal and hydrocarbon (PAH) contaminated soils on site, which if left untreated, present an unacceptable risk to human health. It was also noted that the Made Ground contained significant material such as ash and brick, and as such, is unsuitable for inclusion within garden areas. It was concluded following the ground investigation that it would be necessary to undertake remedial works and put in place associated risk management systems to facilitate the safe redevelopment of the site. This will ensure that the site is suitable for the proposed end-use as a residential development. In addition, the site was classified as Amber 2 / Characteristic Situation 2 (CS2) with respect to ground gas risk and requires appropriate ground gas protection measures commensurate with this classification.

### 3.2 Remedial Objectives

Remedial works are regarded as a form of risk management, the aim of which is to demonstrably break the chain of any potentially unacceptable pollutant linkages that connect contaminant sources to receptors via pathways on site. The aims of the remedial works are:

- To ensure that human health (site end-users including future residents, visitors and ground workers including construction and future maintenance workers) are not exposed to elevated concentrations of hazardous substances on site.
- Ensure that any remedial works overcome any perceived risks or blight associated with the previous use of the site and any potential associated contamination.

### 3.3 Source, Pathway and Receptor Management

A Source Pathway Receptor Conceptual Model has been produced for the site using the data from the SCA and is presented in Appendix B. There are three potential options to break the pollutant linkages at the site. These options are presented below:

#### 3.3.1 Source Reduction

This involves the reduction, removal, modification or destruction of the contamination source. Applicable techniques include:

- Source removal through excavation and disposal of contaminated soils and any associated contaminated infrastructure.
- In-situ or ex-situ physical, chemical, biological and thermal source reduction methods.

### 3.3.2 Pathway Management

This involves the prevention of movement of contaminants on route to receptors. Applicable techniques include:

- Removal or destruction of contaminants e.g. bioactive zones.
- Preventing pathways from operating e.g. separation-layer or clean-soil cover layer capping system (cover system), stabilisation, slurry walls and correctly installed gas membranes.

### 3.3.3 Receptor Protection

This protects the receptor by modifying activities and behaviour to reduce exposure and is not normally classed as remediation, but as risk reduction. It is generally a less favourable method for mitigating the risk from contamination. Applicable techniques include:

- Restricting or changing the land use e.g. change to residential use without gardens.
- Changing the design, layout or the proposed construction e.g. adding hardstanding to problem areas.
- Restricting access of the receptor e.g. fencing or walls.

## 3.4 Viable Remediation Techniques

As with any proposed remedial works, the size, scale and nature of the site, site characteristics, quantity, type and extent of contaminated material present in soils and groundwater, the time frame, cost / benefit analysis and value and the sustainability of the remedial method must all be considered when exploring remedial options. A Remediation Option Matrix for the site is presented in Appendix C.

A range of remedial technologies exist and have been explored and the methods considered most viable for the site are listed below.

### 3.4.1 Excavation and Disposal

Excavation and disposal of impacted soils is the most basic of remedial techniques, but often most effective. Contaminated soils and any associated infrastructure i.e. buried pipework and impacted materials are removed either in their entirety or to an acceptable depth to allow the inclusion of an inert capping layer.

Contaminated materials are generally disposed of to landfill void, material recovery or soil treatment facilities. Some materials may be physically suitable for reuse on site, such as impacted sub-base, which can be reused under new roadways and permanent hardstanding as capped by the hardsurfacing.

The drawback of this technique is unknown volumes and associated costs and low sustainability. This method is also generally not considered suitable for deep contamination deeper than 2m bgl due to large volumes which would require disposal and the potential for ground instability from such an excavation.

A significant quantity of Made Ground and natural soils will be removed from the site due to the proposed basement on site. As such the remediation across the majority of the site will be undertaken effectively by default due to the basement excavation and site strip removing a large proportion of the impacted Made Ground. This is considered to be a practical, cost effective and environmental-friendly approach.

### 3.4.2 Soil Stabilisation

Soil stabilisation is achieved by the reaction of contaminants with reagents to promote sorption, precipitation or incorporation into crystal lattices.

This is not deemed viable at the site due to the presence of residential garden areas on site.

### 3.4.3 Solidification

Solidification is a remediation technology that involves the addition of reagents to a contaminated material to impart physical and dimensional stability to contain contaminants in a solid product and reduce access by external agents (e.g. air and rainfall). This technology is not viable within the proposed residential garden areas or within or close to the residential dwelling building footprint due to potential drainage issues.

This method is not viable on the site due to the presence of residential garden areas in which the drainage would be adversely impacted.

### 3.4.4 Chemical Oxidation

In its simplest form, chemical oxidation remediation comprises the introduction of an oxidation agent into the ground or a stockpiled material to allow an oxidation reaction to occur (in soil and groundwater) and convert the contaminants to a lower risk form.

For in-situ treatment, this method requires permeable soils to allow the circulation of treatment chemicals which are generally in an aqueous form. This method is not considered the most suitable method due to the geology encountered, possible permeable Kempton Park Gravel Member located between shallow impermeable Langley Silt Member and impermeable London Clay Formation at depth, and complexity of the contaminants found.

### 3.4.5 Monitored Natural Attenuation

This method comprises the natural attenuation of contaminants in soil and groundwater through various means such as natural bio-gradation, abiotic oxidation, sorption, volatilisation and dispersion, with monitoring to assess the progress of the attenuation.

For this method to be viable, the affected soil must be physically and chemically suitable and demonstrate that natural attenuation is occurring or could have the ability to occur. Due to the limited coarse grained Kempton Park Gravel Member strata between the impermeable nature of the shallow Langley Silt Member and London Clay Formation at depth and nature of the contaminant present on site this option is not considered the most viable.

## 3.5 Remedial Sustainability

As discussed in Section 3.0, a range of remedial options have been investigated and several factors considered within the option appraisal process including; efficiency, sustainability and effectiveness of the remedial technique, potential costs, haulage movements on and off-site and potential carbon emissions, other environmental factors, accurate focusing of remedial works, timescales and the general overall benefits.

### 3.6 Most Viable Remedial Option

It is considered that the most viable remediation method for the site, for the heavy metal and hydrocarbon impacted Made Ground encountered on the site is source reduction through the excavation and disposal of this material. This will likely be undertaken by default due to the planned site strip and lowering of levels for the construction of the proposed basements. In addition, as gardens will then likely be located onto reworked natural soils or fill material utilised to raise the site levels around the proposed basement the construction of a cover system should be used to protect the end site users from any remaining legacy contamination. This is considered to be the most viable method due to the proposed development including basements and likely lowering of levels.

With respect to ground gas risk on site and off-site sources were identified. As such the basement excavations on site will reduce the gas risk from onsite sources, however, there will remain a residual risk sources and source reduction will not eliminate the risk. Specific ground gas protection measures are prescribed within the relevant guidance, which effectively equate to a form of pathway management. The relevant guidance is listed below.

- BS 8485:2015. Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. British Standard Institute. 2015
- BRE414: 2001 Protective measures for housing on gas-contaminated land. Building Research Establishment: 2001
- BS8576: 2013. Guidance on Investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs). British Standard Institute. 2013.
- CIRIA C665 Assessing risks posed by hazardous ground gases to buildings. CIRIA 2007
- NHBC report No 10627-R01(04) Guidance on development proposals on sites where methane and carbon dioxide are present, March 2007
- CIRIA C735 Good Practice on the Testing and Verification of Protection Systems for Buildings Against Hazardous Ground Gases, CIRIA 2014.

None of the remaining remedial options outlined in Section 3.0 are considered practical or suitable for the site.

## 4.0 REMEDIATION ACTIONS

### 4.1 Introduction

The remedial measures required to make the site suitable for its proposed residential with plant uptake land use are detailed in this section of the report and the construction of a cover system following removal of the Made Ground to provide a separation between these impacted soils and the end site users to allow a break of the related S-P-R linkages.

### 4.2 Impacted Soils and Remediation Areas

Metal and Hydrocarbon (PAH) impacted Made Ground soils were identified in the boreholes WS1, WS2, and WS4 located across the site. In addition, given the presence of materials such as brick, concrete, macadam and ash within the Made Ground across the site, this would render the near surface Made Ground unsuitable for use as Topsoil in proposed garden area.

On the above basis remedial works are required within all open areas of site comprising proposed soft landscaping.

Soil remediation works are not deemed necessary in areas of the site covered in permanent hardstanding as the identified contamination is not deemed volatile; therefore, the covering of hardstanding would effectively sever the pathways and associated contamination linkages from the end site users directly contacting the impacted soils.

### 4.3 Remedial Action

#### 4.3.1 Removal of Metal and Hydrocarbon Impacted soils

**Productive Garden Area**

In the areas of the site which are to be soft landscaped within the proposed development, such as the proposed private gardens, much of the impacted Made Ground is likely to be removed as part of the excavations for the proposed basement and associated groundworks. Made Ground may remain is some area of site where levels are not to be lowered as part of the basement excavation. Therefore, Made Ground should be removed in any areas where it remains to create a minimum 600mm separate between legacy contaminated Made Ground soils which are to remain on site and the proposed end users.

**Peripheral Soft and Decorative Landscaping Area**

In these slightly lower sensitivity areas of the site, a minimum of 300mm separate between legacy contaminated Made Ground soils which are to remain on site and the proposed end users is deemed suitable.

The extent of these areas requiring removal of Made Ground to form a minimum 600mm separation is indicated on the Remediation Plan presented in Appendix D.

All soils excavated as part of the works on site should be loaded immediately into a haulage vehicle for removal or placed on bunded geo-membrane and covered to prevent the generation of wind-blown dust. The material should be removed off-site once the waste has been classified and a disposal destination selected.

### 4.3.2 Construction of the Cover System

In addition to the removal of the impacted Made Ground soils a cover system of clean soils will also be required to provide a suitable growing medium within proposed garden areas.

The areas that require remedial works are indicated on the Remediation Plan presented in Appendix D.

The cover system for the open soft landscaped areas should comprise the placement of at least 600mm of clean certified soils in potentially productively planted areas of the site such as private gardens and 300mm of clean certified soils in communal open soft landscaped and decoratively planted areas.

The surface of the clean cover system should comprise at least 150mm of Topsoil in open decoratively planted areas with at 300mm of Topsoil in potential productive garden areas. The remaining depth of cover system may comprise any suitable sub-soils comprising of clay, silt, sand, gravel or any combination of these constituent so long as these soils are chemically clean and free from deleterious material such as brick, concrete, plastic and glass.

In any private garden areas of the site where impacted Made Ground is not fully removed, or where gardens are located above fill material used to backfill around basement excavations, a geotextile membrane should be put in place as a marker layer below the placed Cover System soils.

### 4.3.3 Ground Gas Protection Measures

Based upon the current guidance the calculated GSVs from monitoring undertaken to date the site falls into Characteristic Situation 2 (CS2) as per Table 2 within BS 8485:2015 or as Amber 2 based upon NHBC traffic light system outlined in NHBC report No 10627-R01(04).

Where the NHBC classification is utilised as per Note 3 from Table 3 – Building Type within BS8485:2015 the NHBC guidance assumes these Type A categorised buildings utilised beam and block floor construction with clear void ventilation. As such the design choice variables are limited to decisions relating to the membrane specification and verification recommendations. Designers utilising this system therefore need to refer to the NHBC guidance to assess compliance for specific recommendations. Where basements are proposed the NHBC classification is not suitable, so the BS8485:2015 Characteristic Situation 2 classification must be employed for design.

Based upon Table 4 within BS8485:2015 and taking into account the type of building and the characteristic situation of the proposed development, a gas protection score of 3.5 would need to be achieved by the gas protective measures put in place.

When the minimum gas protection score has been determined for the building as a whole, or for each part of the building, then a combination of two or more of the following three types of protection measures should be used to achieve that score:

- the structural barrier of the floor slab, or of the basement slab and walls if a basement is present;
- ventilation measures; and
- gas resistant membrane.

Tables 5, 6 and 7 within BS8485:20015 outline the various measures for structural barriers, ventilation measures, and gas resistant membranes that produce points and can contribute to the total point score required for gas protection measures. No more than one element of each type (i.e. from each Table) should be combined to achieve the recommended gas protection score.

To achieve the appropriate Points Score required for Characteristic Situation (CS) 2 Che protection measures should comprise:

**For Characteristic Situation 2**

**Structural Barrier** – Precast suspended segmented floor, i.e. beam and block (0 point), Cast insitu ground bearing floor slab (0.5 point), cast insitu monolithic ground bearing raft or reinforced cast in situ suspended floor slab (1 to 1.5 points), basement floor and walls conforming to BS 8102:2009 Grade 2 waterproofing (2 points) or Grade 3 waterproofing (2.5 points)

**Membrane** – A suitable gas resistant membrane (2 points)

**Ventilation** – Pressure relief pathway (0.5 points), passive sub floor dispersal layer such as clear void, polystyrene void former blanket, geocomposite void former or no fine gravel layer with gas drains (1.5 to 2.5 dependent upon performance), an active dispersal layer usually comprising fans (1.5 to 2.5 point), active positive pressurization (1.5 to 2.5 point) or ventilated basement / undercroft car park (4 points).

The performance of membranes is heavily dependent on the quality and the design of the installation, resistance to damage after installation and integrity of joints. For example, a minimum 0.4 mm thickness (equivalent to 370 g/m2 for polyethelene) reinforced membrane (virgin polymer) meets the performance criteria in Table 7 (see C.3 in BS8485:2015 for further information on gas resistance membrane selection).

The gas membrane should be fitted by a suitably qualified person and the fitment validated by the Remediation Engineer.

The above recommendation and design approaches are subject to agreement by the relevant regulator.

A suitably qualified engineer or similar should be consulted for detailed design of the proposed gas protection measures and ground floor interaction.

The gas membrane should be fitted by a suitably qualified person and the fitment validated by the Remediation Engineer.

### 4.3.4 Remediation Backfill Soils

In the first instance it is preferred to use site won soils to construct the cover system, such as Topsoil or treated suitable remedial soils sourced from the on-site groundworks/strip for backfilling excavation and construction for the cover system.

Suitable Topsoil type material was not identified on site and the shallow Made Ground is deemed to be unsuitable for use within soft landscaped open areas. As such it is considered likely that suitable Topsoil material will need to be imported from off site.

It is however possible that some natural materials excavated as part of the basement groundworks could be reused as sub-soils. Such proven clean site won soils proposed for inclusion as part of the cover system should be stored on bunded geotextile and covered to prevent cross contamination with unsuitable Made Ground material.

Any imported soils and Topsoil required to make up the volumes, as well as site won materials sourced from on site excavations must be certified clean before being brought to site or placed and where imported it should be from a reputable source.

The imported Topsoil should be a good quality growing medium and have been subjected to chemical testing (at the rate of a minimum of two samples per source and one sample per 1000$m^3$ thereafter (minimum 3no. samples).

The imported materials are required to meet the British Standard for Topsoil (BS 3882: 2015) and the PGE In-House total soil contaminant concentration GACs for a residential with plant uptake land-use scenario, which are included in Appendix E.

### 4.4 Remediation Quantities

It is unclear at the present how much material will need to be excavated and disposed as part of the remediation process, however as basement are present it is likely significantly more soils will be exported than imported onto site. Calculations will be made in due course to enable appropriate cut and fill balance to be maintained at the site where appropriate.

## 5.0 SOIL WASTE CLASSIFICATION

As part of the remediation works some soils are likely to require off-site disposal.

The HazWaste online classification system was employed to assess the waste classification employing the total determinand concentrations within samples of the near surface Made Ground and separately, the near surface natural soils, in relation to groundworks arising disposal.

This indicated the majority of Made Ground tested and all of the natural soils tested to have a Non-Hazardous classification with EWC code **17 05 04.** The Made Ground samples from WS1 at 1.80m indicated a Hazardous waste classification based on lead, with an EWC code **17 05 03.**

Waste Acceptance Criteria (WAC) testing was also carried out to determine if the soils tested could be disposed of into an inert facility on two composite samples of near surface soils. This indicates that the samples of soils had leachable determinand levels generally below the related guidance levels for disposal into an inert facility on the samples both from shallow Made Ground soils and natural soils at greater depth.

The sample from WS1 was noted to contain fragments of brick, tile, ceramic and plastic which is considered likely to be the source of the elevated lead concentration and requires a hazardous classification. As such soils from this vicinity will likely be unsuitable for disposal as inert material, however, as no other concentration were elevated and the generally low levels of leachates recorded within the WAC testing, soils from this area will likely be suitable for disposed as non-reactive hazardous waste.

The results of the soil waste classification testing are presented in Appendix F.

**On the above basis, it is considered that the natural soils and the majority of the Made ground soils tested would classify as non-hazardous waste and may be suitable for disposal into an inert facility.**

**The limited depth of Made Ground soils in the vicinity of WS1 require a separate treatment and a hazardous classification.**

All waste classification should be confirmed with the waste receiving facility prior to disposal. The waste receiving facility, especially if not an inert landfill, may also require the total soil priority contaminant concentrations which are also presented in Appendix F.

## 6.0 REMEDIATION VALIDATION

The remedial works shall be performed under the supervision of a suitably qualified person, who will fill the role of a Remedial Quality Assurance Engineer (RQA) which is required for validation purposes.

During the remedial works and following general site clearance, a watching brief shall be maintained such that should the sub-soil conditions in other areas of the site appear to be inconsistent with those found in the areas sampled, then this can be bought to the attention of the RQA Engineer and these recommendations reviewed.

### 6.1 Remediation Supervision

A site visit would be advisable to be undertaken by PGE to inspect the excavation once the Made Ground has been stripped to confirm a suitable depth has been removed and if a geotextile membrane is required or if Topsoil can be placed directly onto exposed natural soils.

It is not deemed necessary for PGE to supervise the placement of the soils to construct the Cover System as this would occur later in the build to mitigate damage to the cover system during construction.

However, the suitability of any imported or treated/screened reused on-site soils should be validated through visual and laboratory assessment with the results approved by PGE prior to importation and use.

A validation visit should also be undertaken to confirm the correct installation of the ground gas membrane and gas protection measures. This can be carried out by PGE or by an independent third party and their report provided to PGE to be incorporated into the validation report.

### 6.2 Post Remediation Validation

Following the remediation works small hand excavations should be formed in the remediated areas of the site to validate the removal of the impacted Made Ground and the placement of sufficient soils for the required cover system in remediation areas. Further to this the placement of the geotextile marker layer, if employed, should be validated at this time.

### 6.3 Validation Reporting

A Validation Report will be prepared by PGE on completion of the remedial works to confirm the removal of the impacted Made Ground where necessary, the correct placement/construction of the cover system and the installation of suitable ground gas protection measures.

The objective of the Verification Report will be to document all aspects of the works undertaken and will include all records collected and maintained by the Client and their appointed construction team / remediation contractor throughout the duration of the project.

The Validation Report will be prepared in accordance with the Environment Agency guidance document Verification of Remediation of Land Contamination (report SC030114/R1 dated 2010).

The Validation Report will describe the site, remediation objectives, remediation technique, verification data, supported by sketches and as-built drawings, figures, photographic records and any additional information that may supplement the report. For the validation of the remediation works detailed records should be maintained of:

- Details of the remediation arisings removed from the site following excavation and disposal destination (licensed facility).
- Details of the soils used
- Details of construction of the cover system
- Proposed and as built drawings for ground gas protection measures
- Details of the membrane installed and details of the installers and relevant qualifications and experience
- A photographic record of the works.

Copies of the Validation Report will be provided to the concerned regulatory authorities, who will be asked to state whether they are satisfied with the level of detail provided and confirm that it appears to be reasonable given the data presented. Based on the information supplied, they will then make a statement about whether the site is fit for its proposed residential end use to allow discharge of the related planning conditions.

Any substantial change to the remediation objectives will be agreed with the Local Planning Authority, as appropriate, prior to commencement and communicated to all relevant parties.

## 7.0 HEALTH, SAFETY AND ENVIRONMENTAL REQUIREMENTS

The construction operatives working on this site should take precautions commensurate with the degree of contamination identified in the previous contamination assessment reports produced for the site and detailed within the Construction Phase Health and Safety Plan.

Best practicable environmental protection should always be employed during the remediation and construction works.

Appropriate Health & Safety precautions including the use of signage, site inductions and toolbox talks to raise awareness of the risks on site, regular dampening down of stockpiles and site surfaces to minimise the generation of wind-blown dusts and the covering of stockpiles (where possible) and the use of PPE should be adopted. Respiratory PPE may be required for use by ground workers where asbestos-containing materials and impacted soils are encountered.

Groundwater is unlikely to be encountered on site during the remedial works at the proposed depths. However, any groundwater encountered should be left in-situ if possible and if it is necessary to be removed off site, the water must be removed off site by a suitable tanker.

## 8.0 REMEDIATION QUALITY ASSURANCE

The site remediation should be considered as a comprehensive process which requires clear and effective management. The Remediation Quality Assurance (RQA) procedures detailed in the Sections above have been included within the Remediation Method Statement to ensure that the objectives are achieved and that:

- The remediation is competent and of a high standard.
- The approach and actions taken are well documented.
- The Client should be confident that the remediation works are suitable for the indicated proposed end site use.

Throughout the site remediation works a suitably qualified and experienced Engineer or Scientist (the RQA Engineer) shall direct the operations for remediation and maintain records of the works carried out whilst supervising all site work. A Validation Report will then be produced and forwarded to the concerned parties.

## REFERENCES


Investigation of Potentially Contaminated Sites – Code of Practice, British Standards Institution BS 10175:2001.

Code of Practice for Site Investigations, British Standards Institution BS5930: 1999+A2:2010

Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination, R&D Technical Report P5-066/TR, 2000, Environment Agency.

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CLR8 Potential Contaminants for the assessment of Land, 2002, DEFRA/Environment Agency.

BRE Special Digest 1 'Concrete in Aggressive Ground', 2001.

Contaminated Land Exposure (CLEA) Model version 1.03 developed by the Environment Agency, Department for Environment, Food and Rural Affairs and the Scottish Environment Protection Agency. 2008

CLR7 Assessment of Risks to Human Health from Land Contamination, 2002, DEFRA/Environment Agency.

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CLR11 Model Procedures for the Management of Land Contamination, 2004, DEFRA/Environment Agency.

Environment Agency guidance document Verification of Remediation of Land Contamination (report SC030114/R1 dated 2010).

Method for Deriving Site-Specific Human Health Criteria for Contaminants in Soil, SNIFFER, 2003.

Technical evaluation of the Intervention Values for Soil/Sediment and Groundwater, RIVM Report 711701 023, National Institute of Public Health and the Environment, 2001.

The Water Supply (Water Quality) Regulations. HMSO. 2000

Code of Practice for Investigation and Mitigation of Possible Petroleum –Based Land Contamination, 1993, Institute of Petroleum, London.

Contaminated Land Management – Ready Reference, J Nathanail, P Bardos and P Nathanail, Land Quality Press, 2002.

BRE Digest 412 'Desiccation in Clay Soils', 1996

Hydrogeological Risk Assessment for Land Contamination Remedial Targets Worksheet, release 3.1 – October 2006

Mobilising Natures Army: Monitored Natural Attenuation – dealing with pollution using natural processes, Environment Agency. 2004

Remediation Targets Methodology: Hydrogeological Risk Assessment for Land Contamination, Environment Agency. 2006

LFTGN01. Hydrogeological Risk Assessment for landfill and the derivation of groundwater control and trigger levels. Environment Agency 2003

**NOTES AND LIMITATIONS**

This report is produced for the sole use of the Client, and no responsibility of any kind, whether for negligence or otherwise, can be accepted for any Third Party who may rely upon it.

The conclusions and recommendations given in this report are based on our understanding of the proposed plans for the site in the future. If, however, the site is developed for a varying use, then a different interpretation might be appropriate.

The report has been prepared following the guidelines and principles established in the British Standards. It necessarily relies on the co-operation of other organisations and the free availability of information and total access. Where data supplied by the Client, including that from previous site investigations, have been used, it has been assumed that the information is correct. No responsibility can be accepted by PGE for inaccuracies within the data supplied.

No responsibility can, therefore, be accepted for conditions arising from information that was not available to the investigating team because of information being withheld or access being denied.

The scope of this Ground Investigation was discussed and agreed with the Client. No responsibility is accepted for conditions not encountered, which are outside of the agreed scope of work.

This report may suggest an opinion on a possible configuration of strata or conditions between exploratory points and below the maximum depth of investigation. However, this is for guidance only and no liability can be accepted for its accuracy. Comments on the groundwater conditions are based on observations made at the time of the investigation unless otherwise stated. It should be noted, however, that groundwater levels might vary due to seasonal or other effects.

It should be noted that this report is based solely on the samples collected in the borehole locations investigated. During the works and following general site clearance, should the sub-soil conditions in other areas of the site appear to be inconsistent with those found in the areas sampled then this geotechnical appraisal and site contamination assessment may need to be reviewed.

This report is prepared and written in the context of the proposals stated in the introduction to this report and it should not be used in a differing context. Furthermore, new information, improved practices and changes in legislation may require an alteration to the report in whole or in part after its submission. Therefore, with any changes in circumstances, or after one year from the date of the report, the report should be referred to Paddock Geo Engineering Limited for re-assessment (and, if necessary, for an estimate for the cost of such).



The report is provided for the sole use by the Client and is confidential to him/her and his/her professional advisors. No responsibility whatsoever for the contents of this report will be accepted to any other person other than the Client.

**APPENDIX A**

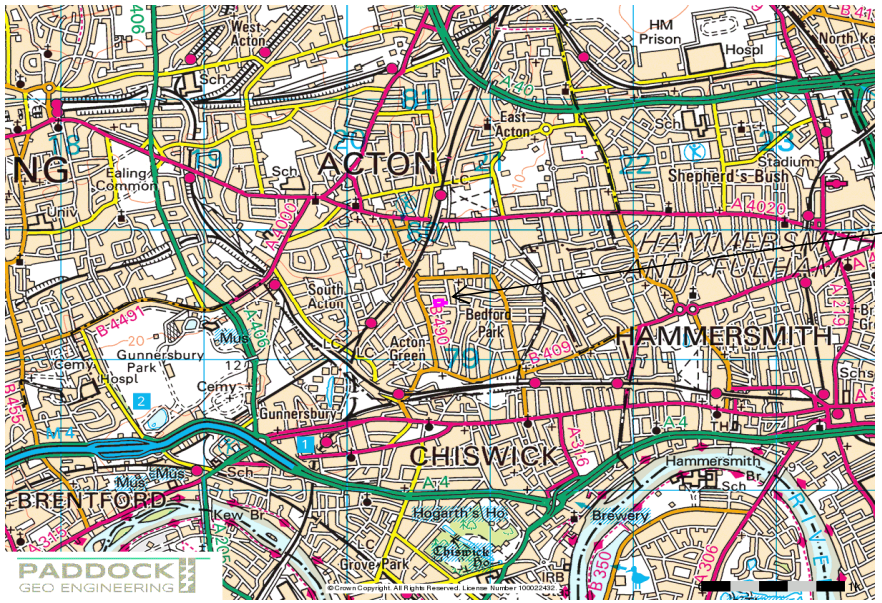
Site Location Plan

Aerial Photograph

Site Plan

Proposed Site Layout Plan

# SITE LOCATION PLAN

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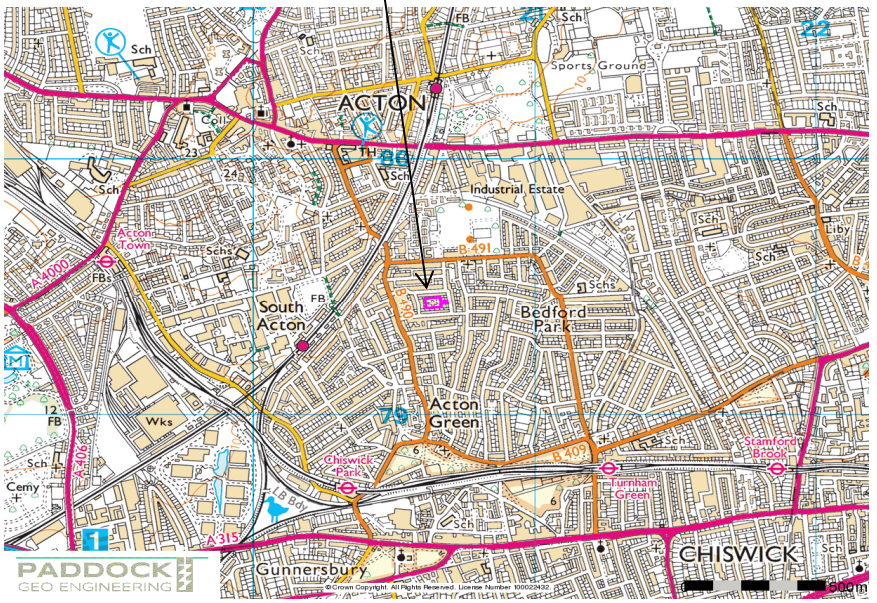


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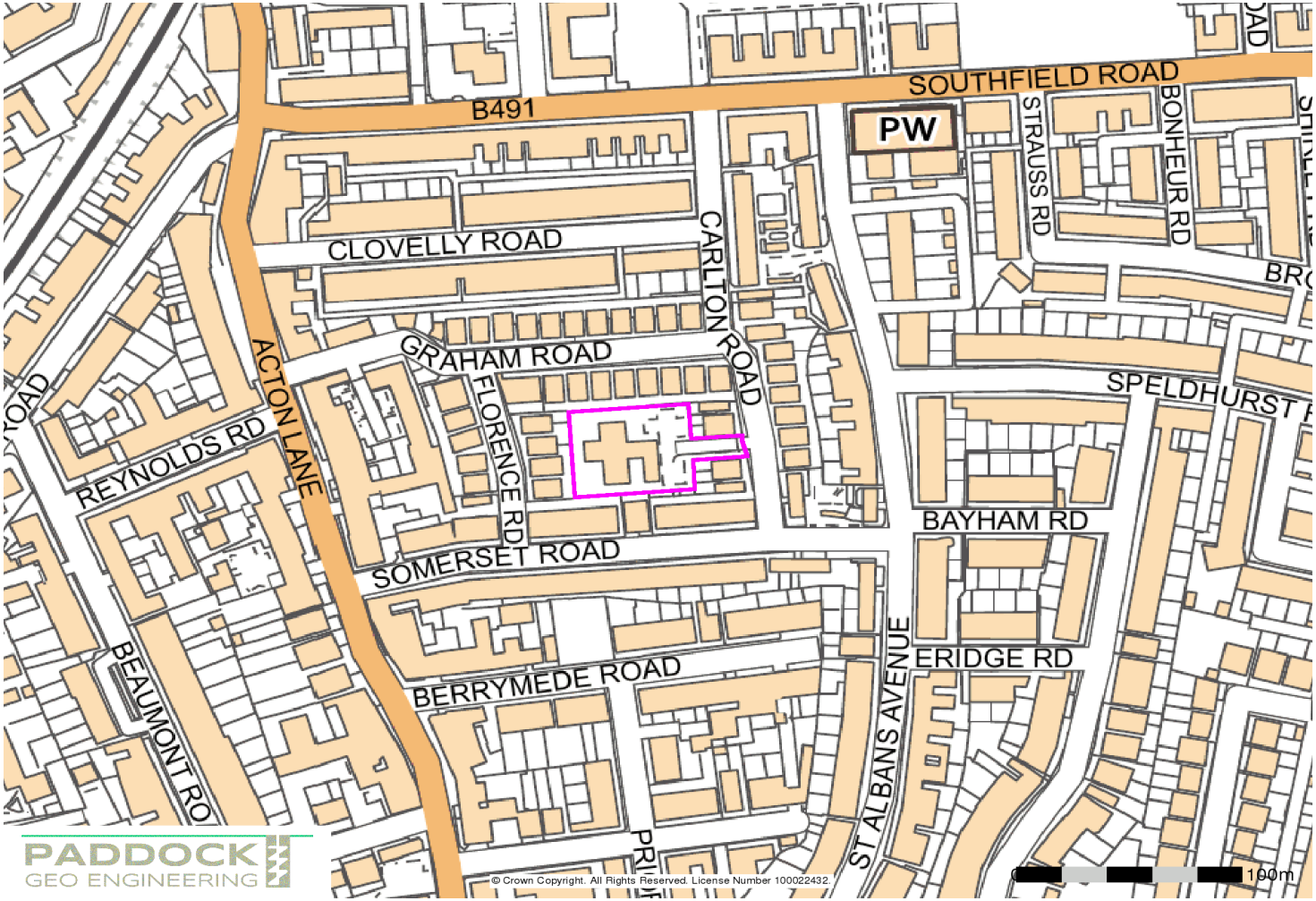
|---|---|
| **CLIENT:** | Fornacelli Limited |
| **PROJECT No:** | P20-180 |
| **PROJECT TITLE:** | 8-10 Carlton Road, Chiswick, W4 5DY |

## SITE PLAN

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| PADDOCK GEO ENGINEERING | **CLIENT:** | Fornacelli Limited |
| | **PROJECT No:** | P20-180 |
| | **PROJECT TITLE:** | 8-10 Carlton Road, Chiswick, W4 5DY |

## AERIAL PHOTOGRAPH


| | | |
|---|---|---|
| PADDOCK GEO ENGINEERING | **CLIENT:** | Fornacelli Limited |
| | **PROJECT No:** | P20-180 |
| | **PROJECT TITLE:** | 8-10 Carlton Road, Chiswick, W4 5DY |

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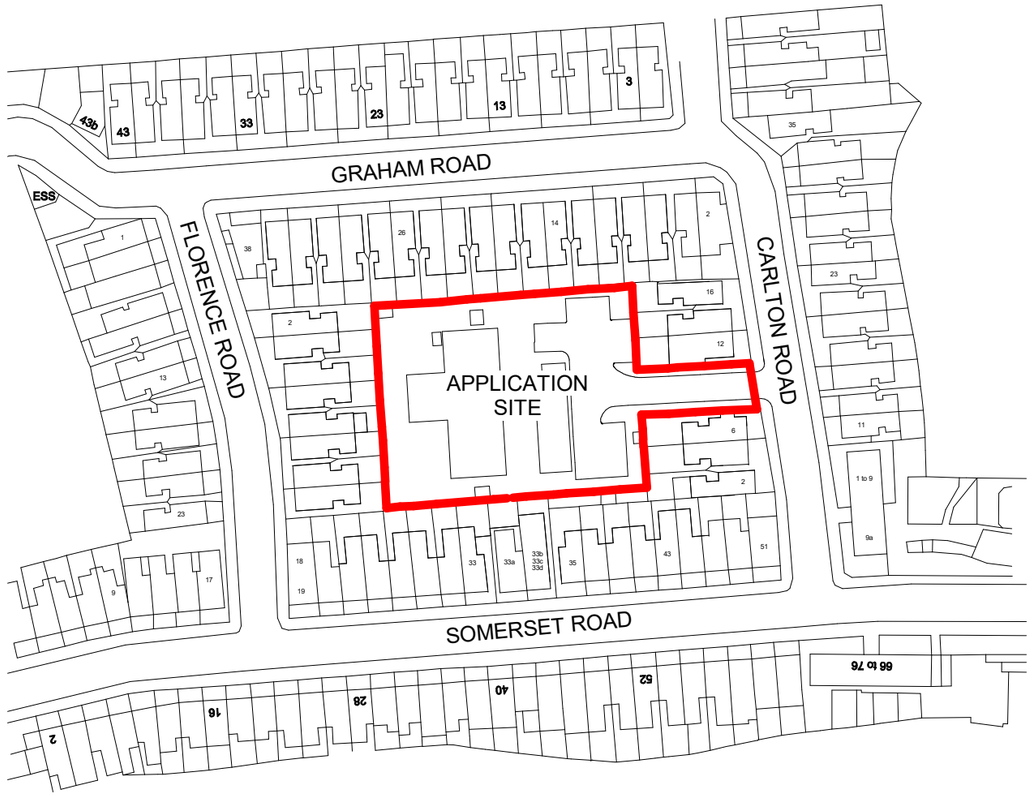


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| | P1 | 09.09.20 | Planning Issue |

North

CLIENT:

STRUCTURAL ENGINEER:

MEP ENGINEER:

OTHER:

NOTE

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drawing title / location
Site Location Plan

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GRAHAM ROAD

CARLTON ROAD

FLORENCE ROAD

SOMERSET ROAD

B2 C3 C2 C1 B1 A1 A2 D1 D2

1 13 23 9 17 38 26 14 2 16 12 6 23 11 1 to 9 9a 18 19 33 33a 33b 33c 33d 35 43 51

## KEY

1. New gates, refer to drawing 5332_X_90_100
2. New close boarded timber fence to site perimeter
3. Car parking space
4. Electric Car Parking Space
5. Private Gardens

| REV | DATE | |
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| P1 | 09.09.20 | Planning Issue |

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North

| CONSULTANTS | |
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| CLIENT: | |
| CONTRACTOR: | - |
| STRUCTURAL ENGINEER: | - |
| MECHANICAL ENGINEER: | - |
| COST CONSULTANT: | - |
| PROJECT MANAGER: | - |
| ACOUSTIC CONSULTANT: | - |
| CLADDING CONSULTANT: | - |
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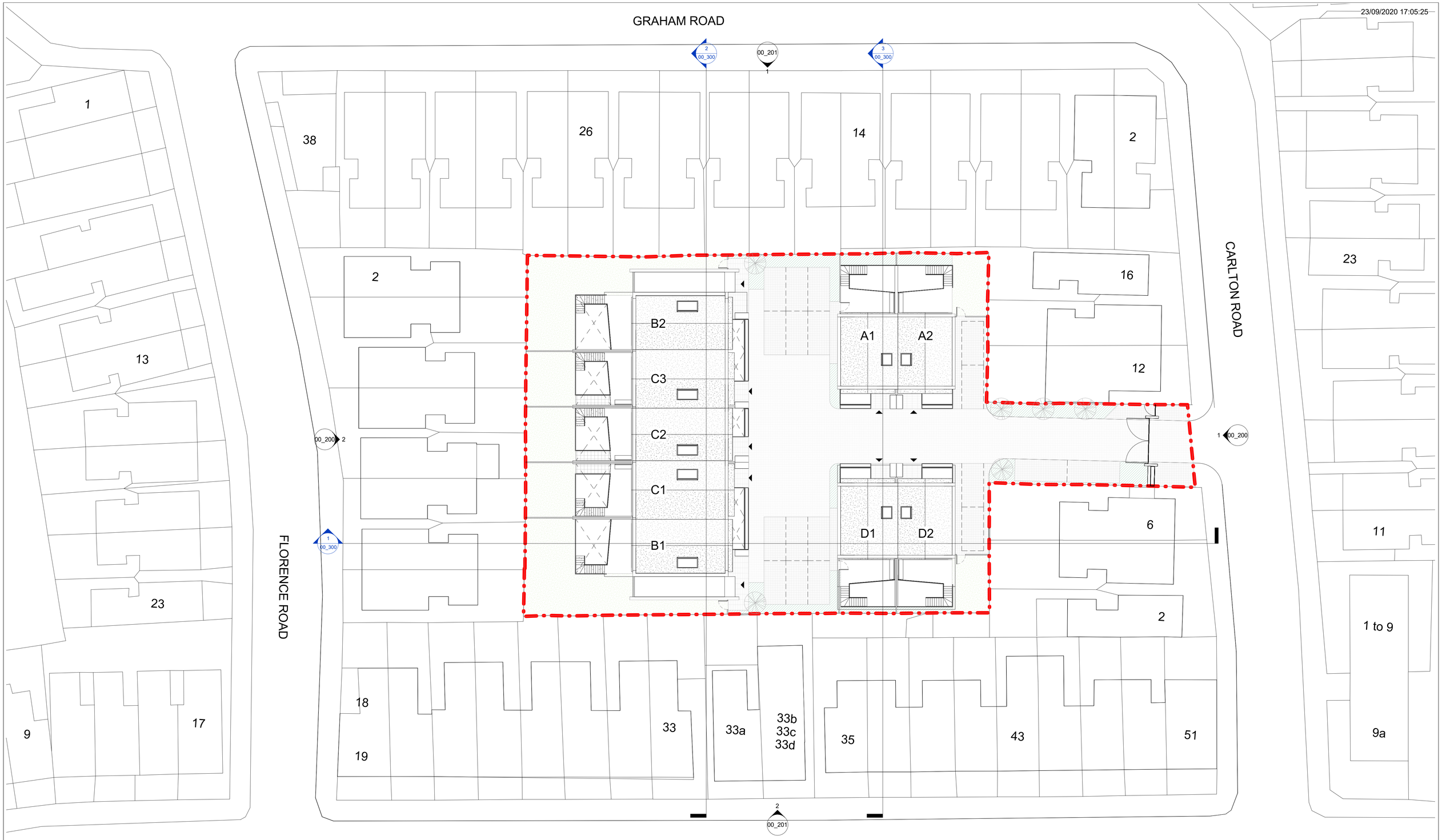
GRAHAM ROAD

FLORENCE ROAD

CARLTON ROAD

SOMERSET ROAD

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NOTE

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Proposed Site Plan - Roof Level

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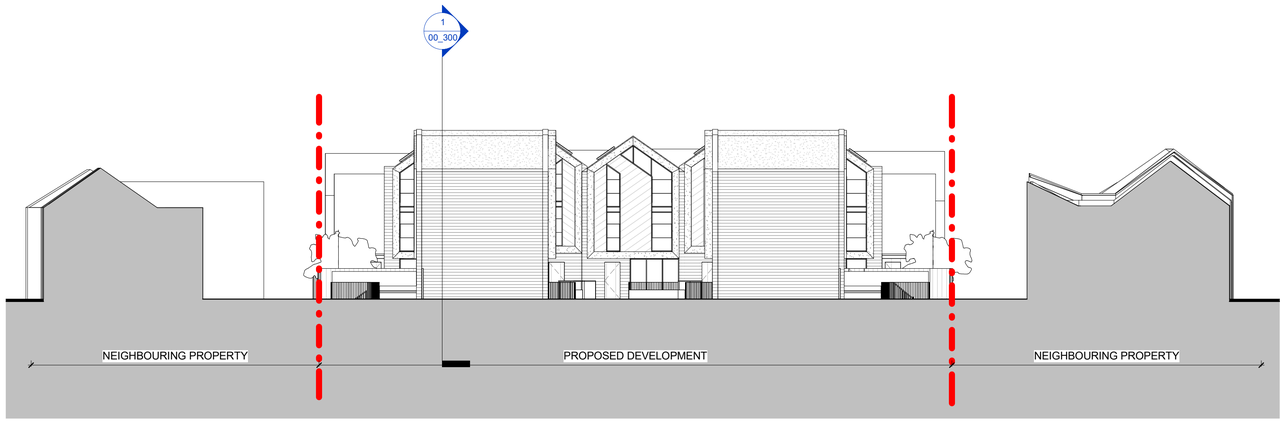


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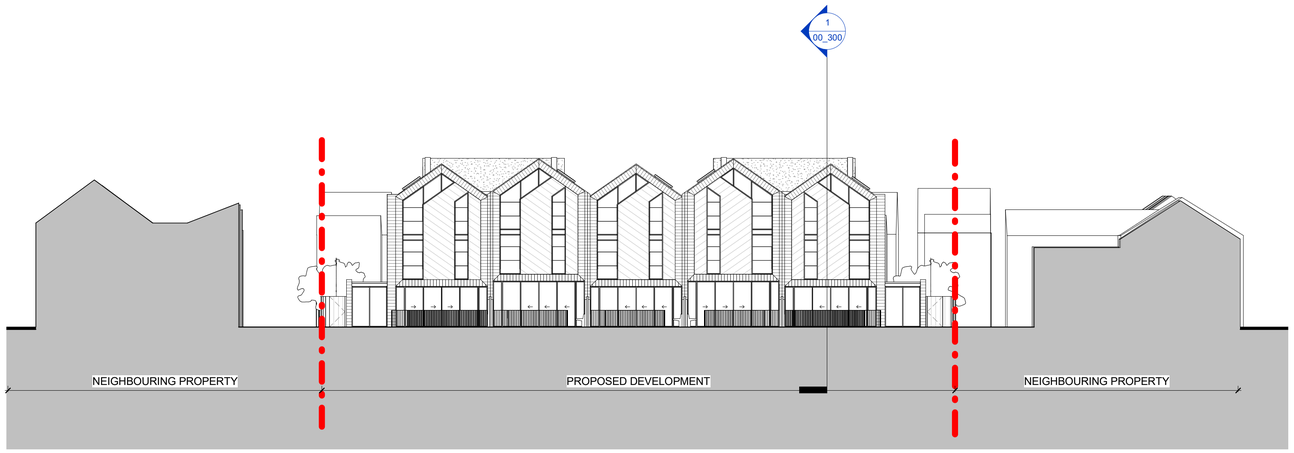


**2** West Elevation - @ 1 : 200

KEY

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| P1 | 09.09.20 | Planning Issue |

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| MECHANICAL ENGINEER: | - |
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| ACOUSTIC CONSULTANT: | - |
| CLADDING CONSULTANT: | - |
| PLANNING CONSULTANT: | - |

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Proposed Site Elevations - Sheet 1

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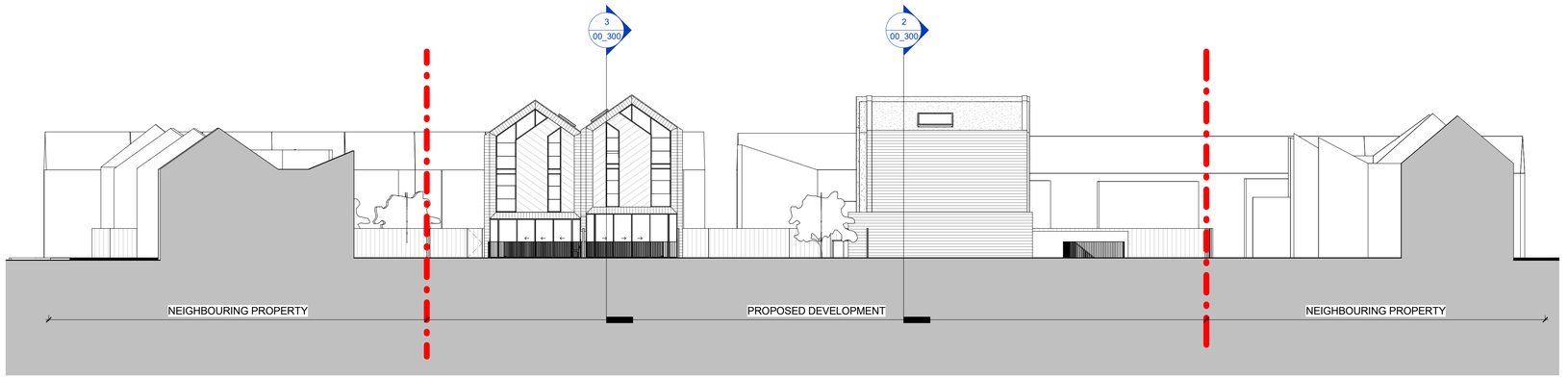


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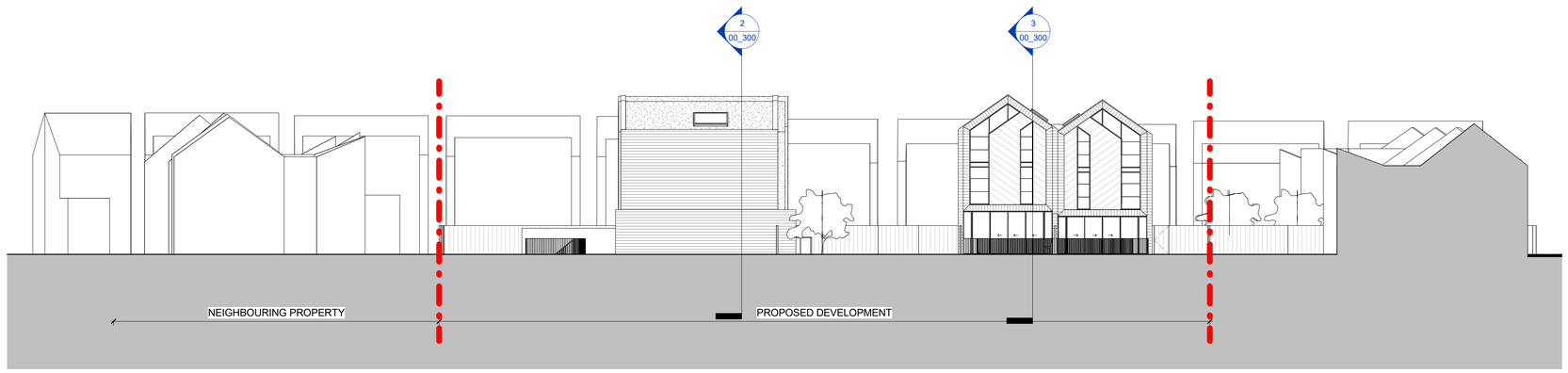


**2** South Elevation - @ 1 : 200

KEY

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| P1 | 09.09.20 | Planning Issue |

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| CONSULTANTS | |
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| CLIENT: | |
| CONTRACTOR: | - |
| STRUCTURAL ENGINEER: | - |
| MECHANICAL ENGINEER: | - |
| COST CONSULTANT: | - |
| PROJECT MANAGER: | - |
| ACOUSTIC CONSULTANT: | - |
| CLADDING CONSULTANT: | - |
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NOTE

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Proposed Site Elevations - Sheet 2

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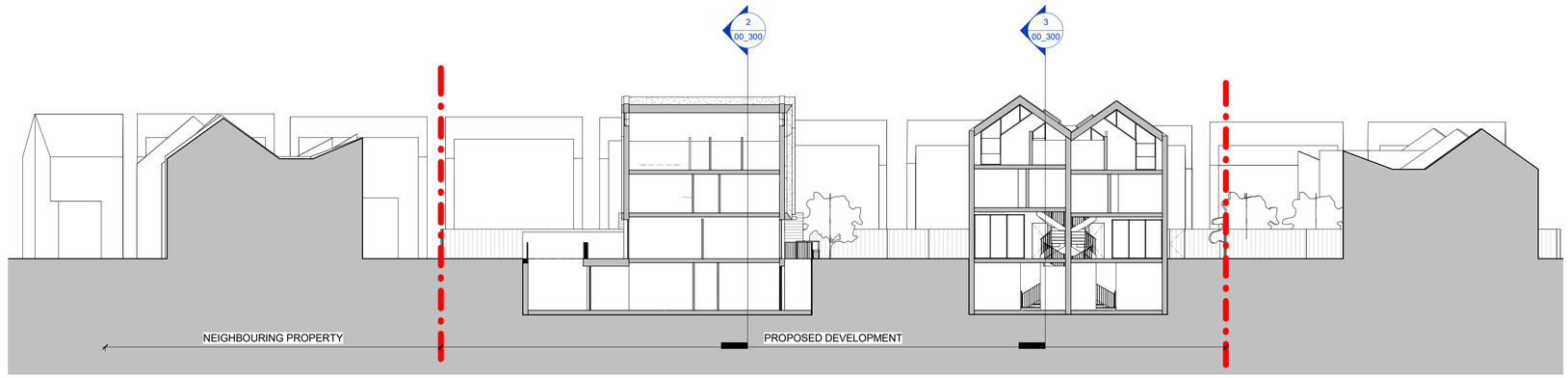


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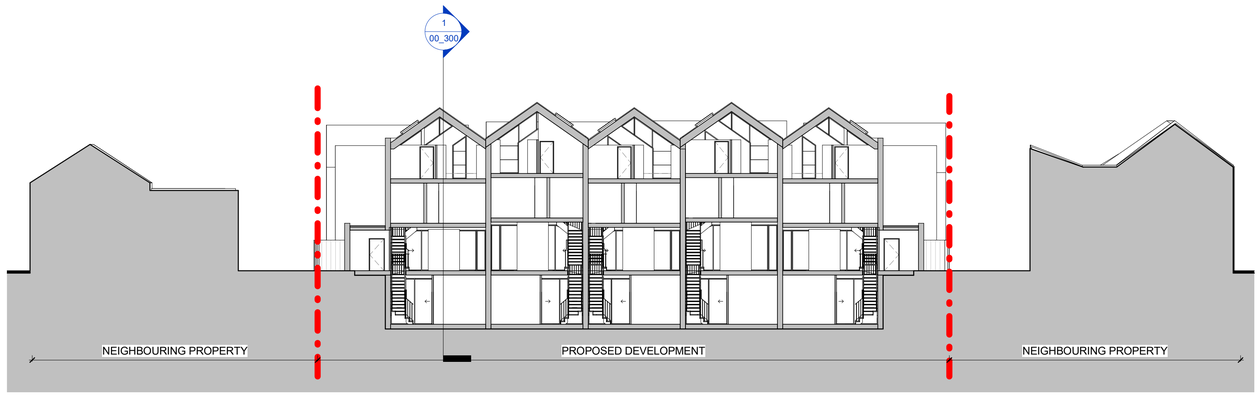


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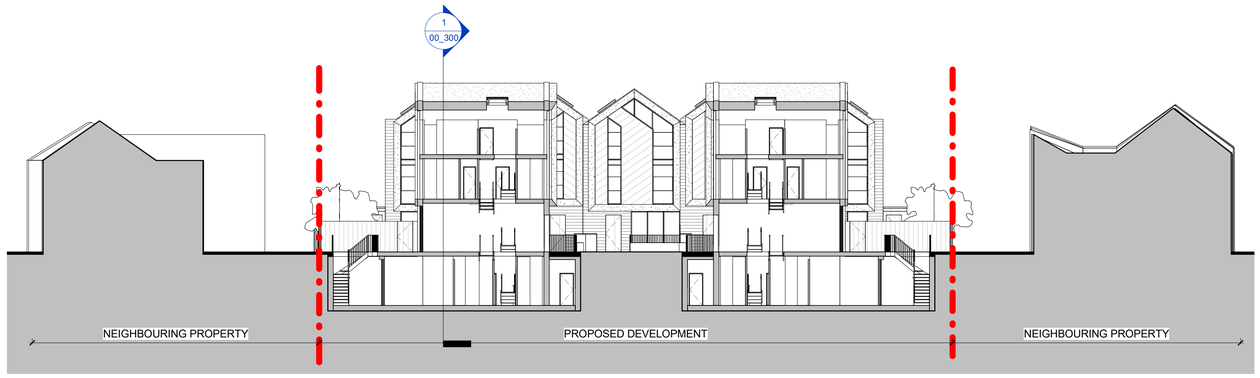


**3** Section 2 - @ 1 : 200

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| CONSULTANTS | |
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| CLIENT: | |
| CONTRACTOR: | - |
| STRUCTURAL ENGINEER: | - |
| MECHANICAL ENGINEER: | - |
| COST CONSULTANT: | - |
| PROJECT MANAGER: | - |
| ACOUSTIC CONSULTANT: | - |
| CLADDING CONSULTANT: | - |
| PLANNING CONSULTANT: | - |

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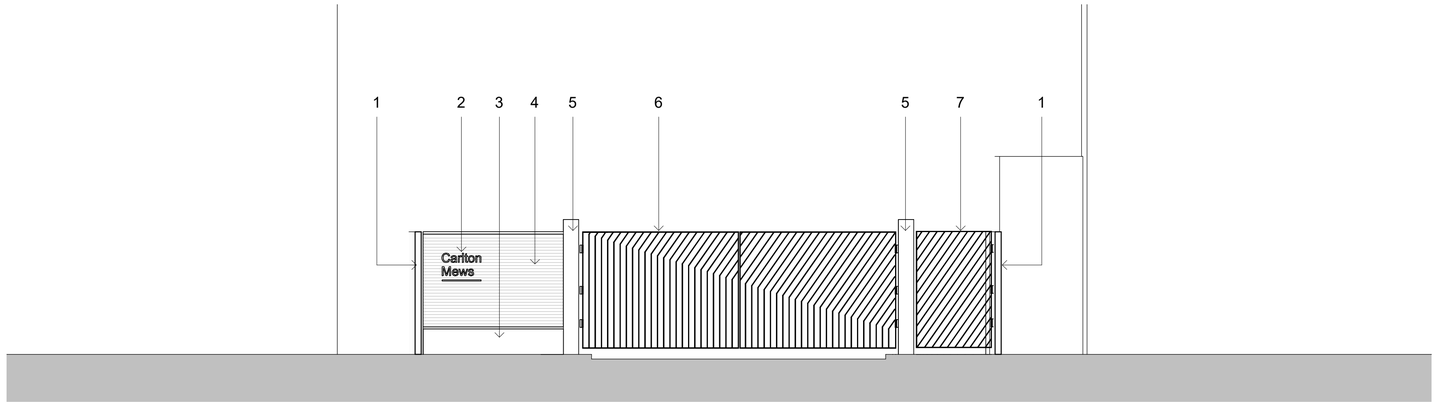


**1** Entrance Gate Elevation - @
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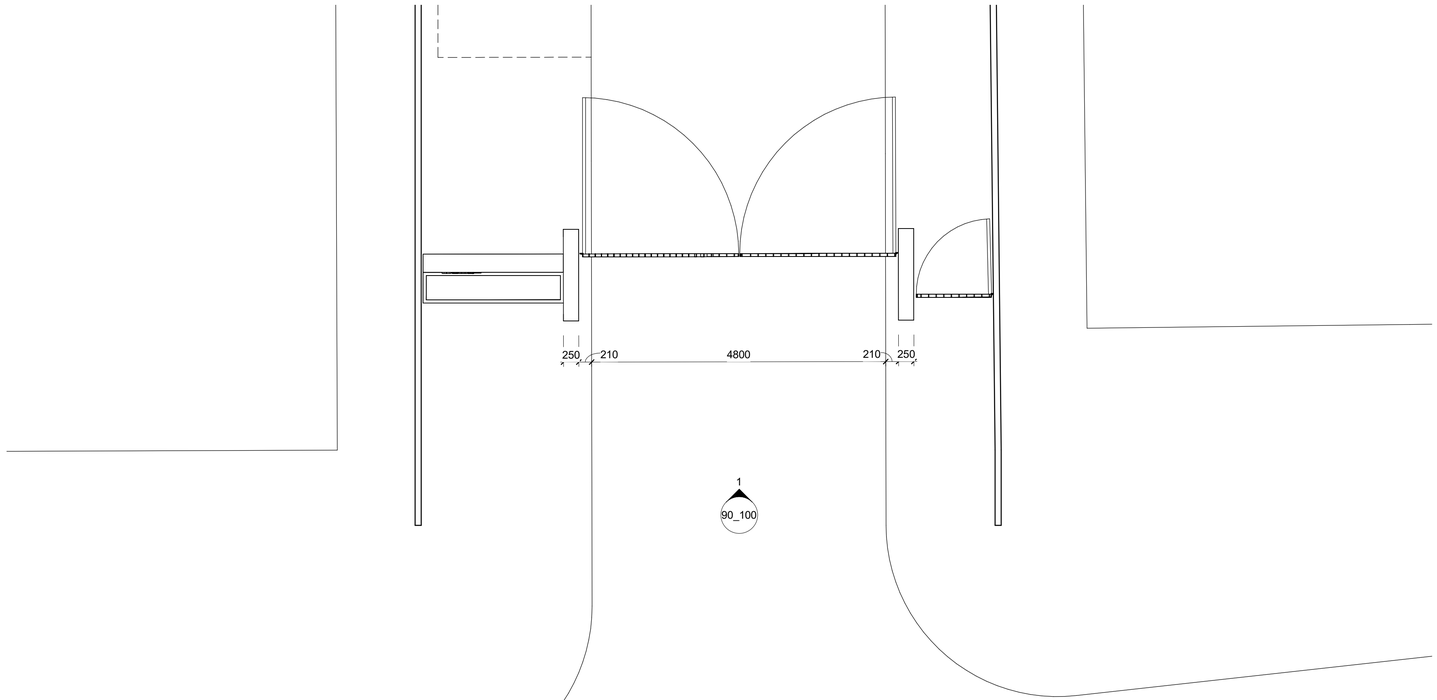


**2** P_00_Entrance Gate Plan -
@ 1 : 50

KEY

1. New close boarded timber fence to site perimeter
2. Illuminated signage
3. Planter - Render Finish
4. Brickwork
5. Render wall
6. Painted metal vehicle entrance gates.
7. Painted metal pedestrian gates.

| REV | DATE | |
|---|---|---|
| P1 | 09.09.20 | Planning Issue |

0 1 2 5m

| CONSULTANTS | |
|---|---|
| CLIENT: | |
| CONTRACTOR: | - |
| STRUCTURAL ENGINEER: | - |
| MECHANICAL ENGINEER: | - |
| COST CONSULTANT: | - |
| PROJECT MANAGER: | - |
| ACOUSTIC CONSULTANT: | - |
| CLADDING CONSULTANT: | - |
| PLANNING CONSULTANT: | - |

NOTE

1. Do not scale from this drawing.
2. All dimensions to be checked on site by the contractor and such dimensions to be his responsibility.
3. Report all drawing errors, omissions and discrepancies to the architect.
4. This document may be issued in an uncontrolled CAD format to enable others to use it as background information to make alterations and/or additions. In that instance the file will be accompanied by a PDF version. It is for those making such alterations and additions to ensure that they make use of current background information. WRA accepts no liability for any such alterations or additions to the background information or arising information which occur prior to alterations of additions being made.

LOCATION

**WHITE RED ARCHITECTS**
www.white-red.co.uk
T (+44) 20 78 084521
29 Charlotte Road, London, EC2A 3PB

job title
Carlton Road

drawing title / location
Entrance Gate Details

| drawn by | checked | scale | status |
|---|---|---|---|
| FB | DL | 1 : 50 | Planning |

| project | zone | type | classification | drawing no | revision |
|---|---|---|---|---|---|
| 5332 | X | | | 90_100 | P1 |

**APPENDIX B**

Source-Pathway-Receptor Ground Models

| Potential On-Site Contaminant Sources | Potential Pathways | Potential Receptors | Pathway Complete | Risk Level Classification |
|---|---|---|---|---|
| ***Elevated lead, arsenic, beryllium phytotoxic copper and PAH compounds in Made Ground across the site.***<br><br>***No asbestos identified in samples subject to screening.***<br><br>***Ground gas indicate Amber 2 / Characteristic Situation 2*** | Dermal/Direct Contact | Current site users | N | |
| | Direct Ingestion | | N | |
| | Direct Inhalation | | N | |
| | Inhalation of Radon Gas | | N | |
| | Inhalation of Wind Blown Dust | | N | |
| | Vapour Migration | | N | |
| | Gas Migration | | N | |
| | Dermal/Direct Contact | Future site users (equivalent to residential use with plant uptake) | Y | Low to Moderate |
| | Direct Ingestion | | Y | Low to Moderate |
| | Direct Inhalation | | Y | Low to Moderate |
| | Inhalation of Radon Gas | | N | |
| | Inhalation of Wind Blown Dust | | Y | Low to Moderate |
| | Vapour Migration | | N | |
| | Ground Gas Migration | | Y | Low to Moderate |
| | Direct Contact | Services (following development) | Y | Low |
| | Migration of Contaminants – Non-Aqueous Phased | | Y | Low |
| | Migration of Contaminants – Aqueous Phased | | Y | Low |
| | Migration of Contaminants – Non-Aqueous Phased | Adjacent Properties | N | |
| | Migration of Contaminants – Aqueous Phased | | N | |
| | Vapour Migration | | N | |
| | Inhalation of Wind Blown Dust | Ecological Impacts | N | |
| | Migration of Contaminants – Non-Aqueous Phased | | N | |
| | Migration of Contaminants – Aqueous Phased | | N | |
| | Migration of Contaminants from site – Non-Aqueous Phased | Controlled groundwater | N | |
| | Migration of Contaminants from site – Aqueous Phased | | N | |
| | Migration of Contaminants – Non-Aqueous Phased | Surface Waters | N | |
| | Migration of Contaminants – Aqueous Phased | | N | |

**APPENDIX C**

Remediation Options Matrix

## Remediation Option Applicability Matrix: Organic Substances

| Remediation Option | Applicable Media | Applicable Substances | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | VOCs | Halogenated hydrocarbons | Non-halogenated hydrocarbons | PAHs | PCBs | Dioxins + Furans | Pesticides + herbicides |
| **Civil Engineering Methods** | | | | | | | | |
| Containment - Cover systems | S | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Containment - Hydraulic barriers | W | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Containment - In-ground barriers | S, W | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Excavation and Disposal | S | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Biological Methods** | | | | | | | | |
| Natural Attenuation | W | Yes | Yes | Yes | Yes | No | No | Yes |
| Biopiles | S | Yes | No | Yes | Yes | No | No | Yes |
| Bioventing | S | Yes | Yes | Yes | Yes | No | No | No |
| Biosparging | S, W | Yes | Yes | Yes | Yes | No | No | Yes |
| Landfarming | S | Yes | No | Yes | Yes | No | No | Yes |
| Slurry phase biotreatment | S | Yes | Yes | Yes | Yes | No | ? | Yes |
| Windrow turning | S | Yes | No | Yes | Yes | No | No | Yes |
| **Chemical Methods** | | | | | | | | |
| Chemical oxidation | S, W | Yes | Yes | Yes | Yes | No | No | Yes |
| Chemical dehalogenation | S | Yes | Yes | Yes | No | No | Yes | No |
| Soil flushing | S | Yes | Yes | Yes | Yes | No | No | No |
| Solvent extraction | S | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Surface amendments | S | No | No | No | No | No | No | No |
| **Physical Methods** | | | | | | | | |
| Dual Phase SVE | S, W | Yes | Yes | Yes | No | No | No | No |
| Air sparging | W | Yes | Yes | Yes | No | No | No | No |
| Soil vapour extraction (SVE) | S | Yes | Yes | Yes | No | No | No | No |
| Permeable reactive barriers (PRBs) | W | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Soil washing | S | No | Yes | Yes | Yes | Yes | No | Yes |
| **Stabilisation and Solidification Methods** | | | | | | | | |
| Hydraulic binders (e.g., cement) | S | No | No | ? | Yes | Yes | Yes | ? |
| Vitrification | S | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Thermal Methods** | | | | | | | | |
| Incineration | S | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Thermal desorption | S | Yes | Yes | Yes | Yes | Yes | No | Yes |

| | |
|---|---|
| Yes | Most Suitable Method |
| Yes | Potentially applicable |
| No | Not applicable |
| ? | A pre-treatment step may be necessary prior to the method being suitable |
| S | Soils, made ground and sediments |
| W | Groundwater and surface water |

PADDOCK GEO ENGINEERING

| | |
|---|---|
| **CLIENT:** | Fornacelli Limited |
| **PROJECT No:** | P20-181 |
| **PROJECT TITLE:** | 8-10 Carlton Road, Chiswick, W4 5DY |

## Remediation Option Applicability Matrix: Inorganic Substances

| Remediation Option | Applicable Media | Applicable Substances | | | | |
|---|---|---|---|---|---|---|
| | | Heavy metals | Non-metals | Asbestos | Cyanides | Explosives |
| **Civil Engineering Methods** | | | | | | |
| Containment - Cover systems | S | Yes | Yes | Yes | Yes | Yes |
| Containment - Hydraulic barriers | W | Yes | Yes | Yes | Yes | Yes |
| Containment - In-ground barriers | S, W | Yes | Yes | Yes | Yes | Yes |
| Excavation and Disposal | S | Yes | Yes | Yes | Yes | Yes |
| **Biological Methods** | | | | | | |
| Natural Attenuation | W | Yes | Yes | No | No | Yes |
| Biopiles | S | No | No | No | No | Yes |
| Bioventing | S | No | No | No | No | No |
| Biosparging | S, W | No | No | No | No | No |
| Landfarming | S | No | No | No | No | Yes |
| Slurry phase biotreatment | S | No | No | No | Yes | Yes |
| Windrow turning | S | No | No | No | No | Yes |
| **Chemical Methods** | | | | | | |
| Chemical oxidation | S, W | No | Yes | No | No | No |
| Chemical dehalogenation | S | No | No | No | No | No |
| Soil flushing | S | Yes | No | No | No | No |
| Solvent extraction | S | No | No | No | No | Yes |
| Surface amendments | S | Yes | Yes | No | No | No |
| **Physical Methods** | | | | | | |
| Dual Phase SVE | S, W | No | Yes | No | No | No |
| Air sparging | W | No | No | No | No | No |
| Soil vapour extraction (SVE) | S | Yes | No | No | No | No |
| Permeable reactive barriers (PRBs) | W | No | No | No | No | Yes |
| Soil washing | S | Yes | Yes | No | No | No |
| **Stabilisation and Solidification Methods** | | | | | | |
| Hydraulic binders (e.g., cement) | S | Yes | Yes | Yes | ? | No |
| Vitrification | S | Yes | Yes | Yes | Yes | Yes |
| **Thermal Methods** | | | | | | |
| Incineration | S | Yes | Yes | Yes | Yes | Yes |
| Thermal desorption | S | Yes | No | No | Yes | No |

| | |
|---|---|
| Yes | Most Suitable Method |
| Yes | Potentially applicable |
| No | Not applicable |
| ? | A pre-treatment step may be necessary prior to the method being suitable |
| S | Soils, made ground and sediments |
| W | Groundwater and surface water |

**APPENDIX D**

Remediation Plan


PADDOCK GEO ENGINEERING

**Remediation Plan**

**8-10 Carlton Road,
Chiswick,
W4 5DY**

**Fornacelli Limited**

**June 2021**

**Private Garden areas which require the installation of a 600mm Cover System**

**Communal Soft Landscaped and Decoratively Planted areas which require the installation of a 300mm Cover System**

**Not to scale.
All positions are approximate and subject to change.
Plan based on plan provided by Peringuer-James**

**APPENDIX E**

Soil Waste Classification Data

PGE In-House GACs

**Stephen**
Paddock Geo Engineering
14 Burns Road
Bletchley
Milton Keynes
MK3 5AL

**t:** 01908 271366

**e:** Paddock Engineering

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

**t:** 01923 225404
**f:** 01923 237404
**e:** reception@i2analytical.com

# Analytical Report Number : 20-21016

| | | | |
|---|---|---|---|
| **Project / Site name:** | Land at 18-20 Carlton Road, Chiswick, W4 5DY | **Samples received on:** | 23/07/2020 |
| **Your job number:** | P20-180 S01 | **Sample instructed/ Analysis started on:** | 23/07/2020 |
| **Your order number:** | P20-180 | **Analysis completed by:** | 03/08/2020 |
| **Report Issue Number:** | 1 | **Report issued on:** | 03/08/2020 |
| **Samples Analysed:** | 9 soil samples | | |

**Signed:**

Zina Abdul Razzak
Senior Quality Specialist

**For & on behalf of i2 Analytical Ltd.**

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

| | |
|---|---|
| soils | - 4 weeks from reporting |
| leachates | - 2 weeks from reporting |
| waters | - 2 weeks from reporting |
| asbestos | - 6 months from reporting |

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

**Analytical Report Number: 20-21016**

**Project / Site name: Land at 18-20 Carlton Road, Chiswick, W4 5DY**
**Your Order No: P20-180**

| **Lab Sample Number** | | | | 1571186 | 1571187 | 1571188 | 1571189 | 1571190 |
|---|---|---|---|---|---|---|---|---|
| **Sample Reference** | | | | BH1 | TP1 | TP2 | WS1 | WS1 |
| **Sample Number** | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Depth (m)** | | | | 0.40 | 0.40 | 0.50 | 0.90 | 1.80 |
| **Date Sampled** | | | | 20/07/2020 | 20/07/2020 | 20/07/2020 | 20/07/2020 | 20/07/2020 |
| **Time Taken** | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Analytical Parameter (Soil Analysis)** | **Units** | **Limit of detection** | **Accreditation Status** | | | | | |
| Stone Content | % | 0.1 | NONE | < 0.1 | 13 | < 0.1 | < 0.1 | < 0.1 |
| Moisture Content | % | N/A | NONE | 6.4 | 9.3 | 12 | 18 | 20 |
| Total mass of sample received | kg | 0.001 | NONE | 0.47 | 1.7 | 0.40 | 0.36 | 0.77 |
| Asbestos in Soil | Type | N/A | ISO 17025 | Not-detected | Not-detected | Not-detected | Not-detected | Not-detected |
| **General Inorganics** | | | | | | | | |
| pH - Automated | pH Units | N/A | MCERTS | 9.7 | 7.9 | 7.4 | 7.2 | 7.1 |
| Total Sulphate as $SO_4$ | mg/kg | 50 | MCERTS | 1700 | 370 | 1500 | 1100 | 9700 |
| Loss on Ignition @ 450°C | % | 0.2 | MCERTS | 4.7 | 2.5 | 4.4 | 3.1 | 9.6 |
| **Speciated PAHs** | | | | | | | | |
| Naphthalene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.25 |
| Acenaphthylene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.36 |
| Acenaphthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Fluorene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.34 |
| Phenanthrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.38 | 0.59 | 4.9 |
| Anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 1.6 |
| Fluoranthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.89 | 1.4 | 13 |
| Pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.93 | 1.4 | 13 |
| Benzo(a)anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.43 | 0.80 | 9.1 |
| Chrysene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.40 | 0.58 | 5.6 |
| Benzo(b)fluoranthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.62 | 0.74 | 10 |
| Benzo(k)fluoranthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.25 | 0.22 | 2.0 |
| Benzo(a)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.42 | 0.46 | 6.2 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.27 | 0.27 | 3.1 |
| Dibenz(a,h)anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 1.2 |
| Benzo(ghi)perylene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.32 | 0.27 | 3.1 |
| **Total PAH** | | | | | | | | |
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | MCERTS | < 0.80 | < 0.80 | 4.91 | 6.73 | 74.0 |
| **Heavy Metals / Metalloids** | | | | | | | | |
| Arsenic (aqua regia extractable) | mg/kg | 1 | MCERTS | 14 | 16 | 15 | 15 | 66 |
| Beryllium (aqua regia extractable) | mg/kg | 0.06 | MCERTS | 1.4 | 1.3 | 1.3 | 1.7 | 8.1 |
| Boron (water soluble) | mg/kg | 0.2 | MCERTS | 1.6 | 1.9 | 2.5 | 4.0 | 7.0 |
| Cadmium (aqua regia extractable) | mg/kg | 0.2 | MCERTS | 1.4 | 1.1 | 0.4 | < 0.2 | < 0.2 |
| Chromium (aqua regia extractable) | mg/kg | 1 | MCERTS | 40 | 46 | 37 | 50 | 33 |
| Copper (aqua regia extractable) | mg/kg | 1 | MCERTS | 55 | 47 | 35 | 38 | 390 |
| Lead (aqua regia extractable) | mg/kg | 1 | MCERTS | 110 | 38 | 84 | 80 | 4500 |
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | 0.6 | < 0.3 | < 0.3 | < 0.3 | 1.7 |
| Nickel (aqua regia extractable) | mg/kg | 1 | MCERTS | 28 | 37 | 30 | 44 | 74 |
| Selenium (aqua regia extractable) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Vanadium (aqua regia extractable) | mg/kg | 1 | MCERTS | 49 | 62 | 66 | 90 | 97 |
| Zinc (aqua regia extractable) | mg/kg | 1 | MCERTS | 130 | 99 | 98 | 92 | 460 |
| **Petroleum Hydrocarbons** | | | | | | | | |
| TPH C10 - C40 | mg/kg | 10 | MCERTS | < 10 | < 10 | < 10 | < 10 | 590 |

**Analytical Report Number: 20-21016**

**Project / Site name: Land at 18-20 Carlton Road, Chiswick, W4 5DY**
**Your Order No: P20-180**

| **Lab Sample Number** | | | | 1571191 | 1571192 | 1571193 | 1571194 | |
|---|---|---|---|---|---|---|---|---|
| **Sample Reference** | | | | WS2 | WS2 | WS3 | WS4 | |
| **Sample Number** | | | | None Supplied | None Supplied | None Supplied | None Supplied | |
| **Depth (m)** | | | | 0.40 | 1.50 | 0.40 | 0.90 | |
| **Date Sampled** | | | | 20/07/2020 | 20/07/2020 | 20/07/2020 | 20/07/2020 | |
| **Time Taken** | | | | None Supplied | None Supplied | None Supplied | None Supplied | |
| **Analytical Parameter (Soil Analysis)** | **Units** | **Limit of detection** | **Accreditation Status** | | | | | |
| Stone Content | % | 0.1 | NONE | < 0.1 | < 0.1 | < 0.1 | < 0.1 | |
| Moisture Content | % | N/A | NONE | 15 | 17 | 19 | 3.5 | |
| Total mass of sample received | kg | 0.001 | NONE | 0.53 | 1.1 | 1.1 | 0.42 | |
| Asbestos in Soil | Type | N/A | ISO 17025 | Not-detected | Not-detected | Not-detected | Not-detected | |
| **General Inorganics** | | | | | | | | |
| pH - Automated | pH Units | N/A | MCERTS | 7.5 | 7.2 | 7.1 | 7.8 | |
| Total Sulphate as $SO_4$ | mg/kg | 50 | MCERTS | 460 | 960 | 10000 | 410 | |
| Loss on Ignition @ 450°C | % | 0.2 | MCERTS | 3.6 | 5.2 | 3.8 | 7.7 | |
| **Speciated PAHs** | | | | | | | | |
| Naphthalene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | |
| Acenaphthylene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | |
| Acenaphthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | |
| Fluorene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | |
| Phenanthrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 1.8 | |
| Anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 0.32 | |
| Fluoranthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 2.7 | |
| Pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 2.6 | |
| Benzo(a)anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 1.9 | |
| Chrysene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 1.1 | |
| Benzo(b)fluoranthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 2.1 | |
| Benzo(k)fluoranthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 0.77 | |
| Benzo(a)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 1.6 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 0.99 | |
| Dibenz(a,h)anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 0.33 | |
| Benzo(ghi)perylene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | 1.1 | |
| **Total PAH** | | | | | | | | |
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | MCERTS | < 0.80 | < 0.80 | < 0.80 | 17.1 | |
| **Heavy Metals / Metalloids** | | | | | | | | |
| Arsenic (aqua regia extractable) | mg/kg | 1 | MCERTS | 14 | 16 | 25 | 32 | |
| Beryllium (aqua regia extractable) | mg/kg | 0.06 | MCERTS | 1.5 | 2.4 | 1.6 | 2.9 | |
| Boron (water soluble) | mg/kg | 0.2 | MCERTS | 2.8 | 3.2 | 2.6 | 2.1 | |
| Cadmium (aqua regia extractable) | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | < 0.2 | < 0.2 | |
| Chromium (aqua regia extractable) | mg/kg | 1 | MCERTS | 50 | 63 | 55 | 26 | |
| Copper (aqua regia extractable) | mg/kg | 1 | MCERTS | 27 | 10 | 29 | 110 | |
| Lead (aqua regia extractable) | mg/kg | 1 | MCERTS | 23 | 24 | 21 | 270 | |
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 | 0.5 | |
| Nickel (aqua regia extractable) | mg/kg | 1 | MCERTS | 43 | 43 | 50 | 40 | |
| Selenium (aqua regia extractable) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Vanadium (aqua regia extractable) | mg/kg | 1 | MCERTS | 79 | 91 | 84 | 72 | |
| Zinc (aqua regia extractable) | mg/kg | 1 | MCERTS | 85 | 98 | 90 | 120 | |
| **Petroleum Hydrocarbons** | | | | | | | | |
| TPH C10 - C40 | mg/kg | 10 | MCERTS | < 10 | < 10 | < 10 | < 10 | |

**Analytical Report Number : 20-21016**

**Project / Site name: Land at 18-20 Carlton Road, Chiswick, W4 5DY**

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description * |
|---|---|---|---|---|
| 1571186 | BH1 | None Supplied | 0.40 | Brown sandy loam with gravel and vegetation. |
| 1571187 | TP1 | None Supplied | 0.40 | Brown clay and sand with stones. |
| 1571188 | TP2 | None Supplied | 0.50 | Brown clay and sand with rubble. |
| 1571189 | WS1 | None Supplied | 0.90 | Brown clay. |
| 1571190 | WS1 | None Supplied | 1.80 | Brown sand with clinker. |
| 1571191 | WS2 | None Supplied | 0.40 | Brown clay. |
| 1571192 | WS2 | None Supplied | 1.50 | Brown clay. |
| 1571193 | WS3 | None Supplied | 0.40 | Brown clay. |
| 1571194 | WS4 | None Supplied | 0.90 | Brown sand with gravel and clinker |

**Analytical Report Number : 20-21016**

**Project / Site name: Land at 18-20 Carlton Road, Chiswick, W4 5DY**

**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)**

| Analytical Test Name | Analytical Method Description | Analytical Method Reference | Method number | Wet / Dry Analysis | Accreditation Status |
|---|---|---|---|---|---|
| Asbestos identification in soil | Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques. | In house method based on HSG 248 | A001-PL | D | ISO 17025 |
| Boron, water soluble, in soil | Determination of water soluble boron in soil by hot water extract followed by ICP-OES. | In-house method based on Second Site Properties version 3 | L038-PL | D | MCERTS |
| Loss on ignition of soil @ 450oC | Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace. | In house method. | L047-PL | D | MCERTS |
| Metals in soil by ICP-OES | Determination of metals in soil by aqua-regia digestion followed by ICP-OES. | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil. | L038-PL | D | MCERTS |
| Moisture Content | Moisture content, determined gravimetrically. (30 oC) | In house method. | L019-UK/PL | W | NONE |
| pH in soil (automated) | Determination of pH in soil by addition of water followed by automated electrometric measurement. | In house method. | L099-PL | D | MCERTS |
| Speciated EPA-16 PAHs in soil | Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. | In-house method based on USEPA 8270 | L064-PL | D | MCERTS |
| Stones content of soil | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight. | In-house method based on British Standard Methods and MCERTS requirements. | L019-UK/PL | D | NONE |
| Total sulphate (as SO4 in soil) | Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES. | In house method. | L038-PL | D | MCERTS |
| TPH Banding in Soil by FID | Determination of hexane extractable hydrocarbons in soil by GC-FID. | In-house method, TPH with carbon banding and silica gel split/cleanup. | L076-PL | W | MCERTS |

**For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.**
**For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.**
**Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.**

| Sample ID | Other_ID | Sample Type | Job | Sample Number | Sample Deviation Code | test_name | test_ref | Test Deviation code |
|---|---|---|---|---|---|---|---|---|
| WS2 | | S | 20-21016 | 1571191 | b | Speciated EPA-16 PAHs in soil | L064-PL | b |



Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

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**e:** Paddock Engineering

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WD18 8YS

**t:** 01923 225404
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**e:** reception@i2analytical.com

# Analytical Report Number : 20-21020

| | | | |
|---|---|---|---|
| **Project / Site name:** | Land at 18-20 Carlton Road, Chiswick, W4 5DY | **Samples received on:** | 23/07/2020 |
| **Your job number:** | P20-180 S01 | **Sample instructed/ Analysis started on:** | 23/07/2020 |
| **Your order number:** | P20-180 | **Analysis completed by:** | 06/08/2020 |
| **Report Issue Number:** | 1 | **Report issued on:** | 06/08/2020 |
| **Samples Analysed:** | 2 10:1 WAC samples | | |

**Signed:** A. Czerwińska

Agnieszka Czerwińska

Technical Reviewer (Reporting Team)
**For & on behalf of i2 Analytical Ltd.**

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

| | |
|---|---|
| soils | - 4 weeks from reporting |
| leachates | - 2 weeks from reporting |
| waters | - 2 weeks from reporting |
| asbestos | - 6 months from reporting |

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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## Waste Acceptance Criteria Analytical Results

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Report No:** | **20-21020** | | | | | | |
| | | | | | **Client:** | **PADDOCK** | |
| **Location** | **Land at 18-20 Carlton Road, Chiswick, W4 5DY** | | | | | | |
| **Lab Reference (Sample Number)** | 1571206 / 1571207 | | | | **Landfill Waste Acceptance Criteria Limits** | | |
| **Sampling Date** | 20/07/2020 | | | | Inert Waste Landfill | Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill | Hazardous Waste Landfill |
| **Sample ID** | BH1+TP1+TP2+WS3+HTP1 Combined | | | | | | |
| **Depth (m)** | 0.90-1.10 | | | | | | |
| **Solid Waste Analysis** | | | | | | | |
| TOC (%)** | 1.8 | | | | 3% | 5% | 6% |
| Loss on Ignition (%) ** | 7.0 | | | | -- | -- | 10% |
| BTEX (µg/kg) ** | < 10 | | | | 6000 | -- | -- |
| Sum of PCBs (mg/kg) ** | < 0.007 | | | | 1 | -- | -- |
| Mineral Oil (mg/kg) | < 10 | | | | 500 | -- | -- |
| Total PAH (WAC-17) (mg/kg) | 2.38 | | | | 100 | -- | -- |
| pH (units)** | 7.4 | | | | -- | >6 | -- |
| Acid Neutralisation Capacity (mol / kg) | 4.1 | | | | -- | To be evaluated | To be evaluated |
| **Eluate Analysis** (BS EN 12457 - 2 preparation utilising end over end leaching procedure) | 10:1 mg/l | | | 10:1 mg/kg | Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg) | | |
| Arsenic * | 0.0054 | | | 0.0486 | 0.5 | 2 | 25 |
| Barium * | 0.0163 | | | 0.145 | 20 | 100 | 300 |
| Cadmium * | < 0.0001 | | | < 0.0008 | 0.04 | 1 | 5 |
| Chromium * | 0.0008 | | | 0.0076 | 0.5 | 10 | 70 |
| Copper * | 0.0030 | | | 0.027 | 2 | 50 | 100 |
| Mercury * | < 0.0005 | | | < 0.0050 | 0.01 | 0.2 | 2 |
| Molybdenum * | 0.0038 | | | 0.0341 | 0.5 | 10 | 30 |
| Nickel * | 0.0009 | | | 0.0082 | 0.4 | 10 | 40 |
| Lead * | < 0.0010 | | | < 0.010 | 0.5 | 10 | 50 |
| Antimony * | < 0.0017 | | | < 0.017 | 0.06 | 0.7 | 5 |
| Selenium * | < 0.0040 | | | < 0.040 | 0.1 | 0.5 | 7 |
| Zinc * | 0.0024 | | | 0.022 | 4 | 50 | 200 |
| Chloride * | 2.2 | | | 20 | 800 | 15000 | 25000 |
| Fluoride | 0.22 | | | 2.0 | 10 | 150 | 500 |
| Sulphate * | 43 | | | 380 | 1000 | 20000 | 50000 |
| TDS* | 85 | | | 760 | 4000 | 60000 | 100000 |
| Phenol Index (Monohydric Phenols) * | < 0.010 | | | < 0.10 | 1 | - | - |
| DOC | 7.63 | | | 68.1 | 500 | 800 | 1000 |
| **Leach Test Information** | | | | | | | |
| Stone Content (%) | < 0.1 | | | | | | |
| Sample Mass (kg) | 0.80 | | | | | | |
| Dry Matter (%) | 83 | | | | | | |
| Moisture (%) | 17 | | | | | | |

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation
** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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## Waste Acceptance Criteria Analytical Results

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Report No:** | **20-21020** | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | **Client:** | **PADDOCK** | |
| | | | | | | | |
| **Location** | **Land at 18-20 Carlton Road, Chiswick, W4 5DY** | | | | | | |
| **Lab Reference (Sample Number)** | 1571208 / 1571209 | | | | **Landfill Waste Acceptance Criteria Limits** | | |
| **Sampling Date** | 20/07/2020 | | | | Inert Waste Landfill | Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill | Hazardous Waste Landfill |
| **Sample ID** | WS1+WS2+WS4+HTP2+HTP3 Combined | | | | | | |
| **Depth (m)** | 0.40-2.90 | | | | | | |
| **Solid Waste Analysis** | | | | | | | |
| TOC (%)** | 1.0 | | | | 3% | 5% | 6% |
| Loss on Ignition (%) ** | 4.2 | | | | -- | -- | 10% |
| BTEX (µg/kg) ** | < 10 | | | | 6000 | -- | -- |
| Sum of PCBs (mg/kg) ** | < 0.007 | | | | 1 | -- | -- |
| Mineral Oil (mg/kg) | < 10 | | | | 500 | -- | -- |
| Total PAH (WAC-17) (mg/kg) | 5.91 | | | | 100 | -- | -- |
| pH (units)** | 8.3 | | | | -- | >6 | -- |
| Acid Neutralisation Capacity (mol / kg) | 1.8 | | | | -- | To be evaluated | To be evaluated |
| **Eluate Analysis** (BS EN 12457 - 2 preparation utilising end over end leaching procedure) | 10:1 mg/l | | | 10:1 mg/kg | Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg) | | |
| Arsenic * | 0.0043 | | | 0.0391 | 0.5 | 2 | 25 |
| Barium * | 0.0262 | | | 0.236 | 20 | 100 | 300 |
| Cadmium * | < 0.0001 | | | < 0.0008 | 0.04 | 1 | 5 |
| Chromium * | 0.0041 | | | 0.037 | 0.5 | 10 | 70 |
| Copper * | 0.0086 | | | 0.078 | 2 | 50 | 100 |
| Mercury * | < 0.0005 | | | < 0.0050 | 0.01 | 0.2 | 2 |
| Molybdenum * | 0.0131 | | | 0.118 | 0.5 | 10 | 30 |
| Nickel * | 0.0052 | | | 0.047 | 0.4 | 10 | 40 |
| Lead * | 0.0094 | | | 0.084 | 0.5 | 10 | 50 |
| Antimony * | < 0.0017 | | | < 0.017 | 0.06 | 0.7 | 5 |
| Selenium * | < 0.0040 | | | < 0.040 | 0.1 | 0.5 | 7 |
| Zinc * | 0.014 | | | 0.13 | 4 | 50 | 200 |
| Chloride * | 1.7 | | | 15 | 800 | 15000 | 25000 |
| Fluoride | 0.46 | | | 4.2 | 10 | 150 | 500 |
| Sulphate * | 18 | | | 160 | 1000 | 20000 | 50000 |
| TDS* | 57 | | | 510 | 4000 | 60000 | 100000 |
| Phenol Index (Monhydric Phenols) * | < 0.010 | | | < 0.10 | 1 | - | - |
| DOC | 8.62 | | | 77.6 | 500 | 800 | 1000 |
| | | | | | | | |
| | | | | | | | |
| **Leach Test Information** | | | | | | | |
| | | | | | | | |
| Stone Content (%) | < 0.1 | | | | | | |
| Sample Mass (kg) | 0.80 | | | | | | |
| Dry Matter (%) | 87 | | | | | | |
| Moisture (%) | 13 | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation
** = MCERTS accrediited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

**Analytical Report Number : 20-21020**

**Project / Site name: Land at 18-20 Carlton Road, Chiswick, W4 5DY**

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description * |
|---|---|---|---|---|
| 1571206 | P1+TP2+WS3 | Combined | 0.90-1.10 | Brown clay. |
| 1571208 | S2+WS4+HTF | Combined | 0.40-2.90 | Brown clay with gravel. |

**Analytical Report Number : 20-21020**

**Project / Site name: Land at 18-20 Carlton Road, Chiswick, W4 5DY**

**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)**

| Analytical Test Name | Analytical Method Description | Analytical Method Reference | Method number | Wet / Dry Analysis | Accreditation Status |
|---|---|---|---|---|---|
| Acid neutralisation capacity of soil | Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe. | In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance"" | L046-PL | W | NONE |
| BS EN 12457-2 (10:1) Leachate Prep | 10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis. | In-house method based on BSEN12457-2. | L043-PL | W | NONE |
| BTEX in soil (Monoaromatics) | Determination of BTEX in soil by headspace GC-MS. | In-house method based on USEPA8260 | L073B-PL | W | MCERTS |
| Chloride 10:1 WAC | Determination of Chloride colorimetrically by discrete analyser. | In house based on MEWAM Method ISBN 0117516260. | L082-PL | W | ISO 17025 |
| Dissolved organic carbon 10:1 WAC | Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser. | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton | L037-PL | W | NONE |
| Fluoride 10:1 WAC | Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode. | In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination" | L033B-PL | W | ISO 17025 |
| Loss on ignition of soil @ 450oC | Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace. | In house method. | L047-PL | D | MCERTS |
| Metals in leachate by ICP-OES | Determination of metals in leachate by acidification followed by ICP-OES. | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil"" | L039-PL | W | ISO 17025 |
| Mineral Oil (Soil) C10 - C40 | Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID. | In-house method with silica gel split/clean up. | L076-PL | D | NONE |
| Moisture Content | Moisture content, determined gravimetrically. (30 oC) | In house method. | L019-UK/PL | W | NONE |
| Monohydric phenols 10:1 WAC | Determination of phenols in leachate by distillation followed by colorimetry. | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton | L080-PL | W | ISO 17025 |
| PCB's By GC-MS in soil | Determination of PCB by extraction with acetone and hexane followed by GC-MS. | In-house method based on USEPA 8082 | L027-PL | D | MCERTS |
| pH at 20oC in soil | Determination of pH in soil by addition of water followed by electrometric measurement. | In house method. | L005-PL | W | MCERTS |
| Speciated WAC-17 PAHs in soil | Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. | In-house method based on USEPA 8270. MCERTS accredited except Coronene. | L064-PL | D | NONE |
| Stones content of soil | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight. | In-house method based on British Standard Methods and MCERTS requirements. | L019-UK/PL | D | NONE |
| Sulphate 10:1 WAC | Determination of sulphate in leachate by ICP-OES | In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"" | L039-PL | W | ISO 17025 |
| Total dissolved solids 10:1 WAC | Determination of total dissolved solids in water by electrometric measurement. | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton | L004-PL | W | ISO 17025 |

PADDOCK GEO ENGINEERING

HazWasteOnline™

# Waste Classification Report

TY5BF-6M2MC-BMQAY

## Job name

Carlton Road, Chiswick

## Description/Comments

## Project

P20-180

## Site

8-10 Carlton Road, Chiswick, W4 5DY

## Related Documents

| # | Name | Description |
|---|---|---|
| None | | |

## Waste Stream Template

Example waste stream template for contaminated soils

## Classified by


Name:
**Matthew Paddock**
Date:
**20 Aug 2020 13:29 GMT**
Telephone:
**07377 422528**

Company:
**Paddock Geo Engineering**
**The Annex,**
**14 Burns Road**
**Milton Keynes**
**MK3 5A**


HazWasteOnline™ Training Record:

| Course | Date |
|---|---|
| Hazardous Waste Classification | - |
| Advanced Hazardous Waste Classification | - |

## Report

Created by: Matthew Paddock
Created date: 20 Aug 2020 13:29 GMT

## Job summary

| # | Sample Name | Depth [m] | Classification Result | Hazard properties | Page |
|---|---|---|---|---|---|
| 1 | BH1 | 0.4 | Non Hazardous | | 3 |
| 2 | TP1 | 0.4 | Non Hazardous | | 5 |
| 3 | TP2 | 0.5 | Non Hazardous | | 7 |
| 4 | WS1 | 0.9 | Non Hazardous | | 9 |
| 5 | WS1[2] | 1.8 | Hazardous | HP 7, HP 10, HP 14 | 11 |
| 6 | WS2 | 0.4 | Non Hazardous | | 14 |
| 7 | WS2[2] | 1.5 | Non Hazardous | | 16 |
| 8 | WS3 | 0.4 | Non Hazardous | | 18 |
| 9 | WS4 | 0.9 | Non Hazardous | | 20 |

## Classification of sample: BH1

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

## Sample details

Sample Name:
**BH1**
Sample Depth:
**0.4 m**

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 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 | | 14 | mg/kg | 1.32 | 18.485 | mg/kg | 0.00185 % | | |
| 2 | | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 1.4 | mg/kg | 2.775 | 3.885 | mg/kg | 0.000389 % | | |
| 3 | | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 1.6 | mg/kg | 3.22 | 5.152 | mg/kg | 0.000515 % | | |
| 4 | | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.4 | mg/kg | 1.142 | 1.599 | mg/kg | 0.00016 % | | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 40 | mg/kg | 1.462 | 58.462 | mg/kg | 0.00585 % | | |
| 6 | | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 55 | mg/kg | 1.126 | 61.924 | mg/kg | 0.00619 % | | |
| 7 | | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 110 | mg/kg | 1.56 | 171.58 | mg/kg | 0.011 % | | |
| 8 | | 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 % | | |
| 9 | | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 28 | mg/kg | 2.976 | 83.335 | mg/kg | 0.00833 % | | |
| 10 | | selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } | 034-002-00-8 | | | | 1 | mg/kg | 2.554 | 2.554 | mg/kg | 0.000255 % | | |
| 11 | | zinc { zinc oxide } | 030-013-00-7 | 215-222-5 | 1314-13-2 | | 130 | mg/kg | 1.245 | 161.813 | mg/kg | 0.0162 % | | |
| 12 | | TPH (C6 to C40) petroleum group | | | TPH | | 10 | mg/kg | | 10 | mg/kg | 0.001 % | | |
| 13 | | pH | | | PH | | 9.7 | pH | | 9.7 | pH | 9.7 pH | | |
| 14 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| 15 | | acenaphthylene | | 205-917-1 | 208-96-8 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 16 | | acenaphthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 17 | | fluorene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 18 | | phenanthrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 19 | | anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 20 | | fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 21 | | pyrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 22 | | benzo[a]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 23 | | chrysene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 24 | | benzo[b]fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 25 | | benzo[k]fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 26 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 27 | | indeno[123-cd]pyrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 28 | | dibenz[a,h]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 29 | | benzo[ghi]perylene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0519 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| 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 In house threshold.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

## Classification of sample: TP1

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

## Sample details

Sample Name:
**TP1**
Sample Depth:
**0.4 m**

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 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 | | 16 | mg/kg | 1.32 | 21.125 | mg/kg | 0.00211 % | | |
| 2 | | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 1.3 | mg/kg | 2.775 | 3.608 | mg/kg | 0.000361 % | | |
| 3 | | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 1.9 | mg/kg | 3.22 | 6.118 | mg/kg | 0.000612 % | | |
| 4 | | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.1 | mg/kg | 1.142 | 1.257 | mg/kg | 0.000126 % | | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 46 | mg/kg | 1.462 | 67.232 | mg/kg | 0.00672 % | | |
| 6 | | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 47 | mg/kg | 1.126 | 52.917 | mg/kg | 0.00529 % | | |
| 7 | | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 38 | mg/kg | 1.56 | 59.273 | mg/kg | 0.0038 % | | |
| 8 | | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.3 | mg/kg | 1.353 | 0.406 | mg/kg | 0.0000406 % | | |
| 9 | | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 37 | mg/kg | 2.976 | 110.122 | mg/kg | 0.011 % | | |
| 10 | | selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } | 034-002-00-8 | | | | 1 | mg/kg | 2.554 | 2.554 | mg/kg | 0.000255 % | | |
| 11 | | zinc { zinc oxide } | 030-013-00-7 | 215-222-5 | 1314-13-2 | | 99 | mg/kg | 1.245 | 123.227 | mg/kg | 0.0123 % | | |
| 12 | | TPH (C6 to C40) petroleum group | | | TPH | | 10 | mg/kg | | 10 | mg/kg | 0.001 % | | |
| 13 | | pH | | | PH | | 7.9 | pH | | 7.9 | pH | 7.9 pH | | |
| 14 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| 15 | | acenaphthylene | | 205-917-1 | 208-96-8 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 16 | | acenaphthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 17 | | fluorene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 18 | | phenanthrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 19 | | anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 20 | | fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 21 | | pyrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 22 | | benzo[a]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 23 | | chrysene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 24 | | benzo[b]fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 25 | | benzo[k]fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 26 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 27 | | indeno[123-cd]pyrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 28 | | dibenz[a,h]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 29 | | benzo[ghi]perylene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0437 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| 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 In house threshold.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

## Classification of sample: TP2

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

## Sample details

Sample Name:
**TP2**
Sample Depth:
**0.5 m**

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 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 | | 15 | mg/kg | 1.32 | 19.805 | mg/kg | 0.00198 % | | |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 1.3 | mg/kg | 2.775 | 3.608 | mg/kg | 0.000361 % | | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 2.5 | mg/kg | 3.22 | 8.05 | mg/kg | 0.000805 % | | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 0.4 | mg/kg | 1.142 | 0.457 | mg/kg | 0.0000457 % | | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 37 | mg/kg | 1.462 | 54.078 | mg/kg | 0.00541 % | | |
| 6 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 35 | mg/kg | 1.126 | 39.406 | mg/kg | 0.00394 % | | |
| 7 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 84 | mg/kg | 1.56 | 131.024 | mg/kg | 0.0084 % | | |
| 8 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.3 | mg/kg | 1.353 | 0.406 | mg/kg | 0.0000406 % | | |
| 9 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 30 | mg/kg | 2.976 | 89.288 | mg/kg | 0.00893 % | | |
| 10 | selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } | 034-002-00-8 | | | | 1 | mg/kg | 2.554 | 2.554 | mg/kg | 0.000255 % | | |
| 11 | zinc { zinc oxide } | 030-013-00-7 | 215-222-5 | 1314-13-2 | | 98 | mg/kg | 1.245 | 121.982 | mg/kg | 0.0122 % | | |
| 12 | TPH (C6 to C40) petroleum group | | | TPH | | 10 | mg/kg | | 10 | mg/kg | 0.001 % | | |
| 13 | pH | | | PH | | 7.4 | pH | | 7.4 | pH | 7.4 pH | | |
| 14 | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| 15 | acenaphthylene | | 205-917-1 | 208-96-8 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 16 | | acenaphthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 17 | | fluorene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 18 | | phenanthrene | | | | 0.38 | mg/kg | | 0.38 | mg/kg | 0.000038 % | | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 19 | | anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 20 | | fluoranthene | | | | 0.89 | mg/kg | | 0.89 | mg/kg | 0.000089 % | | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 21 | | pyrene | | | | 0.93 | mg/kg | | 0.93 | mg/kg | 0.000093 % | | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 22 | | benzo[a]anthracene | | | | 0.43 | mg/kg | | 0.43 | mg/kg | 0.000043 % | | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 23 | | chrysene | | | | 0.4 | mg/kg | | 0.4 | mg/kg | 0.00004 % | | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 24 | | benzo[b]fluoranthene | | | | 0.62 | mg/kg | | 0.62 | mg/kg | 0.000062 % | | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 25 | | benzo[k]fluoranthene | | | | 0.25 | mg/kg | | 0.25 | mg/kg | 0.000025 % | | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 26 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.42 | mg/kg | | 0.42 | mg/kg | 0.000042 % | | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 27 | | indeno[123-cd]pyrene | | | | 0.27 | mg/kg | | 0.27 | mg/kg | 0.000027 % | | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 28 | | dibenz[a,h]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 29 | | benzo[ghi]perylene | | | | 0.32 | mg/kg | | 0.32 | mg/kg | 0.000032 % | | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0439 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| 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 In house threshold.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

## Classification of sample: WS1

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

## Sample details

Sample Name:
**WS1**
Sample Depth:
**0.9 m**

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 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 | | 15 | mg/kg | 1.32 | 19.805 | mg/kg | 0.00198 % | | |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 1.7 | mg/kg | 2.775 | 4.718 | mg/kg | 0.000472 % | | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 4 | mg/kg | 3.22 | 12.88 | mg/kg | 0.00129 % | | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 0.2 | mg/kg | 1.142 | 0.228 | mg/kg | 0.0000228 % | | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 50 | mg/kg | 1.462 | 73.078 | mg/kg | 0.00731 % | | |
| 6 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 38 | mg/kg | 1.126 | 42.784 | mg/kg | 0.00428 % | | |
| 7 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 80 | mg/kg | 1.56 | 124.785 | mg/kg | 0.008 % | | |
| 8 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.3 | mg/kg | 1.353 | 0.406 | mg/kg | 0.0000406 % | | |
| 9 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 44 | mg/kg | 2.976 | 130.956 | mg/kg | 0.0131 % | | |
| 10 | selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } | 034-002-00-8 | | | | 1 | mg/kg | 2.554 | 2.554 | mg/kg | 0.000255 % | | |
| 11 | zinc { zinc oxide } | 030-013-00-7 | 215-222-5 | 1314-13-2 | | 92 | mg/kg | 1.245 | 114.514 | mg/kg | 0.0115 % | | |
| 12 | TPH (C6 to C40) petroleum group | | | TPH | | 10 | mg/kg | | 10 | mg/kg | 0.001 % | | |
| 13 | pH | | | PH | | 7.2 | pH | | 7.2 | pH | 7.2 pH | | |
| 14 | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| 15 | acenaphthylene | | 205-917-1 | 208-96-8 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 16 | | acenaphthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 17 | | fluorene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 18 | | phenanthrene | | | | 0.59 | mg/kg | | 0.59 | mg/kg | 0.000059 % | | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 19 | | anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 20 | | fluoranthene | | | | 1.4 | mg/kg | | 1.4 | mg/kg | 0.00014 % | | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 21 | | pyrene | | | | 1.4 | mg/kg | | 1.4 | mg/kg | 0.00014 % | | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 22 | | benzo[a]anthracene | | | | 0.8 | mg/kg | | 0.8 | mg/kg | 0.00008 % | | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 23 | | chrysene | | | | 0.58 | mg/kg | | 0.58 | mg/kg | 0.000058 % | | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 24 | | benzo[b]fluoranthene | | | | 0.74 | mg/kg | | 0.74 | mg/kg | 0.000074 % | | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 25 | | benzo[k]fluoranthene | | | | 0.22 | mg/kg | | 0.22 | mg/kg | 0.000022 % | | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 26 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.46 | mg/kg | | 0.46 | mg/kg | 0.000046 % | | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 27 | | indeno[123-cd]pyrene | | | | 0.27 | mg/kg | | 0.27 | mg/kg | 0.000027 % | | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 28 | | dibenz[a,h]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 29 | | benzo[ghi]perylene | | | | 0.27 | mg/kg | | 0.27 | mg/kg | 0.000027 % | | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0499 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| 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 In house threshold.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

## Classification of sample: WS1[2]

**Hazardous Waste**
Classified as **17 05 03 ***
in the List of Waste

## Sample details

| | | |
|---|---|---|
| Sample Name: | LoW Code: | |
| **WS1[2]** | Chapter: | 17: Construction and Demolition Wastes (including excavated soil from contaminated sites) |
| Sample Depth: | | |
| **1.8 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. 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:

lead chromate: (Note 1 conc.: 0.45%)

**HP 10: Toxic for reproduction** "waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring"

Hazard Statements hit:

**Repr. 1A; H360Df** "May damage the unborn child. Suspected of damaging fertility."

Because of determinand:

lead chromate: (Note 1 conc.: 0.45%)

**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:

lead chromate: (Note 1 conc.: 0.45%)

## 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 | | 66 mg/kg | 1.32 | 87.141 mg/kg | 0.00871 % | | |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 8.1 mg/kg | 2.775 | 22.48 mg/kg | 0.00225 % | | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 7 mg/kg | 3.22 | 22.539 mg/kg | 0.00225 % | | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 0.2 mg/kg | 1.142 | 0.228 mg/kg | 0.0000228 % | | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 33 mg/kg | 1.462 | 48.231 mg/kg | 0.00482 % | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 6 | | copper { dicopper oxide; copper (I) oxide } | | | | 390 | mg/kg | 1.126 | 439.096 | mg/kg | 0.0439 % | | |
| | | 029-002-00-X | 215-270-7 | 1317-39-1 | | | | | | | | | |
| 7 | | lead { lead chromate } | | | 1 | 4500 | mg/kg | 1.56 | 7019.168 | mg/kg | 0.45 % | | |
| | | 082-004-00-2 | 231-846-0 | 7758-97-6 | | | | | | | | | |
| 8 | | mercury { mercury dichloride } | | | | 1.7 | mg/kg | 1.353 | 2.301 | mg/kg | 0.00023 % | | |
| | | 080-010-00-X | 231-299-8 | 7487-94-7 | | | | | | | | | |
| 9 | | nickel { nickel chromate } | | | | 74 | mg/kg | 2.976 | 220.244 | mg/kg | 0.022 % | | |
| | | 028-035-00-7 | 238-766-5 | 14721-18-7 | | | | | | | | | |
| 10 | | 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 | | | | | | | | | | | |
| 11 | | zinc { zinc oxide } | | | | 460 | mg/kg | 1.245 | 572.568 | mg/kg | 0.0573 % | | |
| | | 030-013-00-7 | 215-222-5 | 1314-13-2 | | | | | | | | | |
| 12 | | TPH (C6 to C40) petroleum group | | | | 590 | mg/kg | | 590 | mg/kg | 0.059 % | | |
| | | | | TPH | | | | | | | | | |
| 13 | | pH | | | | 7.1 | pH | | 7.1 | pH | 7.1 pH | | |
| | | | | PH | | | | | | | | | |
| 14 | | naphthalene | | | | 0.25 | mg/kg | | 0.25 | mg/kg | 0.000025 % | | |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 15 | | acenaphthylene | | | | 0.36 | mg/kg | | 0.36 | mg/kg | 0.000036 % | | |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 16 | | acenaphthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 17 | | fluorene | | | | 0.34 | mg/kg | | 0.34 | mg/kg | 0.000034 % | | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 18 | | phenanthrene | | | | 4.9 | mg/kg | | 4.9 | mg/kg | 0.00049 % | | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 19 | | anthracene | | | | 1.6 | mg/kg | | 1.6 | mg/kg | 0.00016 % | | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 20 | | fluoranthene | | | | 13 | mg/kg | | 13 | mg/kg | 0.0013 % | | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 21 | | pyrene | | | | 13 | mg/kg | | 13 | mg/kg | 0.0013 % | | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 22 | | benzo[a]anthracene | | | | 9.1 | mg/kg | | 9.1 | mg/kg | 0.00091 % | | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 23 | | chrysene | | | | 5.6 | mg/kg | | 5.6 | mg/kg | 0.00056 % | | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 24 | | benzo[b]fluoranthene | | | | 10 | mg/kg | | 10 | mg/kg | 0.001 % | | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 25 | | benzo[k]fluoranthene | | | | 2 | mg/kg | | 2 | mg/kg | 0.0002 % | | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 26 | | benzo[a]pyrene; benzo[def]chrysene | | | | 6.2 | mg/kg | | 6.2 | mg/kg | 0.00062 % | | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 27 | | indeno[123-cd]pyrene | | | | 3.1 | mg/kg | | 3.1 | mg/kg | 0.00031 % | | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 28 | | dibenz[a,h]anthracene | | | | 1.2 | mg/kg | | 1.2 | mg/kg | 0.00012 % | | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 29 | | benzo[ghi]perylene | | | | 3.1 | mg/kg | | 3.1 | mg/kg | 0.00031 % | | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.658 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Hazardous result |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| 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 In house threshold.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.059%)

## Classification of sample: WS2

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

## Sample details

Sample Name:
**WS2**
Sample Depth:
**0.4 m**

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 } | | 14 mg/kg | 1.32 | 18.485 mg/kg | 0.00185 % | | |
| | 033-003-00-0 / 215-481-4 / 1327-53-3 | | | | | | | |
| 2 | beryllium { beryllium oxide } | | 1.5 mg/kg | 2.775 | 4.163 mg/kg | 0.000416 % | | |
| | 004-003-00-8 / 215-133-1 / 1304-56-9 | | | | | | | |
| 3 | boron { diboron trioxide; boric oxide } | | 2.8 mg/kg | 3.22 | 9.016 mg/kg | 0.000902 % | | |
| | 005-008-00-8 / 215-125-8 / 1303-86-2 | | | | | | | |
| 4 | cadmium { cadmium oxide } | | 0.2 mg/kg | 1.142 | 0.228 mg/kg | 0.0000228 % | | |
| | 048-002-00-0 / 215-146-2 / 1306-19-0 | | | | | | | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 50 mg/kg | 1.462 | 73.078 mg/kg | 0.00731 % | | |
| | / 215-160-9 / 1308-38-9 | | | | | | | |
| 6 | copper { dicopper oxide; copper (I) oxide } | | 27 mg/kg | 1.126 | 30.399 mg/kg | 0.00304 % | | |
| | 029-002-00-X / 215-270-7 / 1317-39-1 | | | | | | | |
| 7 | lead { lead chromate } | 1 | 23 mg/kg | 1.56 | 35.876 mg/kg | 0.0023 % | | |
| | 082-004-00-2 / 231-846-0 / 7758-97-6 | | | | | | | |
| 8 | 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 | | | | | | | |
| 9 | nickel { nickel chromate } | | 43 mg/kg | 2.976 | 127.979 mg/kg | 0.0128 % | | |
| | 028-035-00-7 / 238-766-5 / 14721-18-7 | | | | | | | |
| 10 | 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 / / | | | | | | | |
| 11 | zinc { zinc oxide } | | 85 mg/kg | 1.245 | 105.801 mg/kg | 0.0106 % | | |
| | 030-013-00-7 / 215-222-5 / 1314-13-2 | | | | | | | |
| 12 | TPH (C6 to C40) petroleum group | | 10 mg/kg | | 10 mg/kg | 0.001 % | | |
| | / / TPH | | | | | | | |
| 13 | pH | | 7.5 pH | | 7.5 pH | 7.5 pH | | |
| | / / PH | | | | | | | |
| 14 | naphthalene | | 0.05 mg/kg | | 0.05 mg/kg | 0.000005 % | | |
| | 601-052-00-2 / 202-049-5 / 91-20-3 | | | | | | | |
| 15 | acenaphthylene | | 0.05 mg/kg | | 0.05 mg/kg | 0.000005 % | | |
| | / 205-917-1 / 208-96-8 | | | | | | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 16 | | acenaphthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 17 | | fluorene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 18 | | phenanthrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 19 | | anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 20 | | fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 21 | | pyrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 22 | | benzo[a]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 23 | | chrysene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 24 | | benzo[b]fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 25 | | benzo[k]fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 26 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 27 | | indeno[123-cd]pyrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 28 | | dibenz[a,h]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 29 | | benzo[ghi]perylene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0406 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| 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 In house threshold.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

## Classification of sample: WS2[2]

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

## Sample details

Sample Name:
**WS2[2]**
Sample Depth:
**1.5 m**

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 } | | 16 mg/kg | 1.32 | 21.125 mg/kg | 0.00211 % | | |
| | 033-003-00-0 / 215-481-4 / 1327-53-3 | | | | | | | |
| 2 | beryllium { beryllium oxide } | | 2.4 mg/kg | 2.775 | 6.661 mg/kg | 0.000666 % | | |
| | 004-003-00-8 / 215-133-1 / 1304-56-9 | | | | | | | |
| 3 | boron { diboron trioxide; boric oxide } | | 3.2 mg/kg | 3.22 | 10.304 mg/kg | 0.00103 % | | |
| | 005-008-00-8 / 215-125-8 / 1303-86-2 | | | | | | | |
| 4 | cadmium { cadmium oxide } | | 0.2 mg/kg | 1.142 | 0.228 mg/kg | 0.0000228 % | | |
| | 048-002-00-0 / 215-146-2 / 1306-19-0 | | | | | | | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 63 mg/kg | 1.462 | 92.078 mg/kg | 0.00921 % | | |
| | / 215-160-9 / 1308-38-9 | | | | | | | |
| 6 | copper { dicopper oxide; copper (I) oxide } | | 10 mg/kg | 1.126 | 11.259 mg/kg | 0.00113 % | | |
| | 029-002-00-X / 215-270-7 / 1317-39-1 | | | | | | | |
| 7 | lead { lead chromate } | 1 | 24 mg/kg | 1.56 | 37.436 mg/kg | 0.0024 % | | |
| | 082-004-00-2 / 231-846-0 / 7758-97-6 | | | | | | | |
| 8 | 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 | | | | | | | |
| 9 | nickel { nickel chromate } | | 43 mg/kg | 2.976 | 127.979 mg/kg | 0.0128 % | | |
| | 028-035-00-7 / 238-766-5 / 14721-18-7 | | | | | | | |
| 10 | 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 / / | | | | | | | |
| 11 | zinc { zinc oxide } | | 98 mg/kg | 1.245 | 121.982 mg/kg | 0.0122 % | | |
| | 030-013-00-7 / 215-222-5 / 1314-13-2 | | | | | | | |
| 12 | TPH (C6 to C40) petroleum group | | 10 mg/kg | | 10 mg/kg | 0.001 % | | |
| | / / TPH | | | | | | | |
| 13 | pH | | 7.2 pH | | 7.2 pH | 7.2 pH | | |
| | / / PH | | | | | | | |
| 14 | naphthalene | | 0.05 mg/kg | | 0.05 mg/kg | 0.000005 % | | |
| | 601-052-00-2 / 202-049-5 / 91-20-3 | | | | | | | |
| 15 | acenaphthylene | | 0.05 mg/kg | | 0.05 mg/kg | 0.000005 % | | |
| | / 205-917-1 / 208-96-8 | | | | | | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 16 | | acenaphthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 17 | | fluorene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 18 | | phenanthrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 19 | | anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 20 | | fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 21 | | pyrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 22 | | benzo[a]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 23 | | chrysene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 24 | | benzo[b]fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 25 | | benzo[k]fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 26 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 27 | | indeno[123-cd]pyrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 28 | | dibenz[a,h]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 29 | | benzo[ghi]perylene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0429 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| 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 In house threshold.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

## Classification of sample: WS3

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

## Sample details

Sample Name:
**WS3**
Sample Depth:
**0.4 m**

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 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 | | 25 | mg/kg | 1.32 | 33.008 | mg/kg | 0.0033 % | | |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 1.6 | mg/kg | 2.775 | 4.441 | mg/kg | 0.000444 % | | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 2.6 | mg/kg | 3.22 | 8.372 | mg/kg | 0.000837 % | | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 0.2 | mg/kg | 1.142 | 0.228 | mg/kg | 0.0000228 % | | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 55 | mg/kg | 1.462 | 80.386 | mg/kg | 0.00804 % | | |
| 6 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 29 | mg/kg | 1.126 | 32.651 | mg/kg | 0.00327 % | | |
| 7 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 21 | mg/kg | 1.56 | 32.756 | mg/kg | 0.0021 % | | |
| 8 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.3 | mg/kg | 1.353 | 0.406 | mg/kg | 0.0000406 % | | |
| 9 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 50 | mg/kg | 2.976 | 148.813 | mg/kg | 0.0149 % | | |
| 10 | selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } | 034-002-00-8 | | | | 1 | mg/kg | 2.554 | 2.554 | mg/kg | 0.000255 % | | |
| 11 | zinc { zinc oxide } | 030-013-00-7 | 215-222-5 | 1314-13-2 | | 90 | mg/kg | 1.245 | 112.024 | mg/kg | 0.0112 % | | |
| 12 | TPH (C6 to C40) petroleum group | | | TPH | | 10 | mg/kg | | 10 | mg/kg | 0.001 % | | |
| 13 | pH | | | PH | | 7.1 | pH | | 7.1 | pH | 7.1 pH | | |
| 14 | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| 15 | acenaphthylene | | 205-917-1 | 208-96-8 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 16 | | acenaphthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 17 | | fluorene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 18 | | phenanthrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 19 | | anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 20 | | fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 21 | | pyrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 22 | | benzo[a]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 23 | | chrysene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 24 | | benzo[b]fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 25 | | benzo[k]fluoranthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 26 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 27 | | indeno[123-cd]pyrene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 28 | | dibenz[a,h]anthracene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 29 | | benzo[ghi]perylene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0455 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| 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 In house threshold.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

## Classification of sample: WS4

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

## Sample details

Sample Name:
**WS4**
Sample Depth:
**0.9 m**

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 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 | | 32 | mg/kg | 1.32 | 42.25 | mg/kg | 0.00423 % | | |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 2.9 | mg/kg | 2.775 | 8.048 | mg/kg | 0.000805 % | | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 2.1 | mg/kg | 3.22 | 6.762 | mg/kg | 0.000676 % | | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 0.2 | mg/kg | 1.142 | 0.228 | mg/kg | 0.0000228 % | | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 26 | mg/kg | 1.462 | 38 | mg/kg | 0.0038 % | | |
| 6 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 110 | mg/kg | 1.126 | 123.848 | mg/kg | 0.0124 % | | |
| 7 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 270 | mg/kg | 1.56 | 421.15 | mg/kg | 0.027 % | | |
| 8 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.5 | mg/kg | 1.353 | 0.677 | mg/kg | 0.0000677 % | | |
| 9 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 40 | mg/kg | 2.976 | 119.051 | mg/kg | 0.0119 % | | |
| 10 | selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } | 034-002-00-8 | | | | 1 | mg/kg | 2.554 | 2.554 | mg/kg | 0.000255 % | | |
| 11 | zinc { zinc oxide } | 030-013-00-7 | 215-222-5 | 1314-13-2 | | 120 | mg/kg | 1.245 | 149.366 | mg/kg | 0.0149 % | | |
| 12 | TPH (C6 to C40) petroleum group | | | TPH | | 10 | mg/kg | | 10 | mg/kg | 0.001 % | | |
| 13 | pH | | | PH | | 7.8 | pH | | 7.8 | pH | 7.8 pH | | |
| 14 | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| 15 | acenaphthylene | | 205-917-1 | 208-96-8 | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 16 | | acenaphthene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 17 | | fluorene | | | | 0.05 | mg/kg | | 0.05 | mg/kg | 0.000005 % | | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 18 | | phenanthrene | | | | 1.8 | mg/kg | | 1.8 | mg/kg | 0.00018 % | | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 19 | | anthracene | | | | 0.32 | mg/kg | | 0.32 | mg/kg | 0.000032 % | | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 20 | | fluoranthene | | | | 2.7 | mg/kg | | 2.7 | mg/kg | 0.00027 % | | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 21 | | pyrene | | | | 2.6 | mg/kg | | 2.6 | mg/kg | 0.00026 % | | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 22 | | benzo[a]anthracene | | | | 1.9 | mg/kg | | 1.9 | mg/kg | 0.00019 % | | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 23 | | chrysene | | | | 1.1 | mg/kg | | 1.1 | mg/kg | 0.00011 % | | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 24 | | benzo[b]fluoranthene | | | | 2.1 | mg/kg | | 2.1 | mg/kg | 0.00021 % | | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 25 | | benzo[k]fluoranthene | | | | 0.77 | mg/kg | | 0.77 | mg/kg | 0.000077 % | | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 26 | | benzo[a]pyrene; benzo[def]chrysene | | | | 1.6 | mg/kg | | 1.6 | mg/kg | 0.00016 % | | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 27 | | indeno[123-cd]pyrene | | | | 0.99 | mg/kg | | 0.99 | mg/kg | 0.000099 % | | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 28 | | dibenz[a,h]anthracene | | | | 0.33 | mg/kg | | 0.33 | mg/kg | 0.000033 % | | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 29 | | benzo[ghi]perylene | | | | 1.1 | mg/kg | | 1.1 | mg/kg | 0.00011 % | | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0788 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| 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 In house threshold.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

## Appendix A: Classifier defined and non CLP determinands

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

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
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

- **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

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **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

- **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

- **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

- **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

- **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

- **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

- **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

## Appendix B: Rationale for selection of metal species

**arsenic {arsenic trioxide}**

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

**beryllium {beryllium oxide}**

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics (edit as required)

**boron {diboron trioxide; boric oxide}**

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

**cadmium {cadmium oxide}**

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

**chromium in chromium(III) compounds {chromium(III) oxide (worst case)}**

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

**copper {dicopper oxide; copper (I) oxide}**

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

**lead {lead chromate}**

Worst case CLP species based on hazard statements/molecular weight (edit as required)

**mercury {mercury dichloride}**

Worst case CLP species based on hazard statements/molecular weight (edit as required)

**nickel {nickel chromate}**

Worst case CLP species based on hazard statements/molecular weight (edit as required)

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

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil. (edit as required)

**zinc {zinc oxide}**

No evidence of industries utilizing zinc on site

## Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2020.224.4427.8663 (11 Aug 2020)
HazWasteOnline Database: 2020.224.4427.8663 (11 Aug 2020)

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
**14th ATP** - Regulation (EU) 2020/217 of 4 October 2019
**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

**Analytical Report Number : 20-21020**

**Project / Site name: Land at 18-20 Carlton Road, Chiswick, W4 5DY**

**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)**

| Analytical Test Name | Analytical Method Description | Analytical Method Reference | Method number | Wet / Dry Analysis | Accreditation Status |
|---|---|---|---|---|---|
| Total organic carbon (Automated) in soil | Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate. | In house method. | L009-PL | D | MCERTS |

**For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.**
**For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.**
**Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.**