
Proposed Strategic Housing Development on the
Former Player Wills site
and undeveloped land owned by Dublin City Council
at South Circular Road, Dublin 8.

VOLUME III
APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

Document Control Sheet

Client	DBTR-SCR1 Fund, a Sub-Fund of the CWTC Multi Family ICAV			
Project Title	Proposed Strategic Housing Development on the former Player Wills site and undeveloped land owned by Dublin City Council at South Circular Road, Dublin 8.			
Document Title	EIAR Volume III Appendices			
Document No.	3830			
Document Comprises	DCS	TOC	Text	Appendices
	1	1	-	23
Prepared by	PG	Checked by	JK	

Revision	Status	Issue date
A	ISSUED	14.12.2020

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APPENDIX 4.1

COVID-19 RISK MITIGATION

REPORT

VOLUME III

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DECEMBER 2020



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COVID-19 Risk Mitigation

Prepared for DBTR-SCR1 Fund, a
Sub-Fund of the CTWC MULTI
FAMILY ICAV

08 December 2020

Client: DBTR-SCR1 Fund, a Sub-Fund of the CTWC MULTI FAMILY ICAV

Report: COVID-19 Risk Mitigation for DBTR-SCR1 Fund, a Sub-Fund of the CTWC MULTI FAMILY ICAV

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Document Details

Document ID: COVID-19 Risk Mitigation for DBTR-SCR1 Fund, a Sub-Fund of the CTWC MULTI FAMILY ICAV

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1 Executive Summary

An in-depth overview to manage Public Health risks in relation to SARS-CoV-2 (COVID19), regarding the planning and designing of the Strategic Housing Development on the former Player Wills site and undeveloped land owned by Dublin City Council at South Circular Road, Dublin 8 was carried out. The assessment determined the risk of infection and exposure to COVID19 within the following domains:

- Pandemic Planning & Design considerations
- Barrier measures
- Environment control
- Living Space organisation (in context to local conditions, technical advice on shared accommodation in a safe and optimal environment)

Health and Safety was a primary driver in ventilation strategies, such as the utilization of full extract with no circulation (kitchen hoods for example) as well as operable windows. The primary design principal is based on a year round, continuous ventilation system with 100 per cent extract and 100 percent fresh air supply with no ventilation. This is in line with the World Health Organisation and the European Centre for Disease Control guidelines on appropriate building engineering controls which include sufficient and effective ventilation, possibly enhanced by particle filtration and air disinfection, avoiding air recirculation and avoiding overcrowding as well as maintaining continuous ventilation. A further example provided within the planning and design includes the usage of local heat recovery ventilation system which provides fresh and extract air to the space within amenity areas, cafes and bars.

The risk assessment determined that the risk of transmission between individuals within the proposed development is **LOW**. Given our current understanding of the transition and infection patterns of COVID19, the main routes to infection include, a) large droplet transmission, b) surface contact and c) airborne transmission. We have determined that the planned layout will have the necessary control measures in place such as environmental controls pertinent to adequate ventilation, social distancing, spacing requirements, sewage and drainage etc. that allow for the risk to be qualified as **LOW**.

The shared kitchen facilities, although likely to be only intermittently used, are not considered to increase the risk of transmission given all the controls that are in place. Common areas will need strict adherence to social distancing and the other control measures proposed in this document if required but are considered no higher risk than similar facilities that may be used outside of the building. The self-contained nature of the accommodation dramatically reduces the risk of transmission of the virus.

Further detail in regard to each mitigation measure, reviewed by International SOS are presented in this report.

2 Reviewer

Dr. Rodrigo Rodriguez-Fernandez

MD, MScIH, MSc, DTMPH, FRSA, FRSPH

Originally trained as a medical physician, Dr. Rodriguez-Fernandez serves as the Global Medical Director, Health Consulting, NCDs & Wellness for International SOS. He also currently serves as the Executive Director and Founder of the NCD Asia Pacific Alliance and is a Senior Lecturer at The University of Manchester.

Dr Rodriguez-Fernandez works advises multinational organizations and governments on healthcare data trends and disease forecasting using advanced epidemiological methods that guide infection control policy. He currently serves as the chief medical advisor to a number of international organisations on workplace related disease control and prevention.

Prior to joining International SOS, he served as an advisor in the area of disease modelling and health system strengthening to the World Health Organization,(WHO), in Latin America, Africa, Europe, Central Asia and South-East Asia.

Dr. Rodriguez-Fernandez has authored more than three dozen peer review publications and books. He is currently a member of Chatham House, Global Health Security, fellow of the RSA and Royal Society of Public Health, the American College of Physicians, the WHO NCD Global Coordination Mechanism, and the Global Chief Medical Officers network. Dr. Rodriguez-Fernandez trained as a medical physician and public health practitioner at the Autonomous University of Guadalajara, Harvard Medical School, Charite University Institute of Tropical Medicine Berlin and the London School of Hygiene and Tropical Medicine.

3 Methodology

Relevant documentation was shared by DBTR-SCR1 Fund, a Sub-Fund of the CTWC MULTI FAMILY ICAV with the International SOS Global Medical Advisor, Dr Rodrigo Rodriguez-Fernandez.

A review was completed of the main documents including architectural drawings against COVID19 risk mitigation and best practice review was completed. This report contains the key findings, recommendations and the results of the analysis for the documentation provided.

The review process is limited in the ability to see how the proposed plans intersect with the COVID19 infection rate at the time of completion, our evolving understanding of COVID19 transmission and mitigation as well as the human behavioural elements of the end user.

Background to the COVID-19 Pandemic

The Coronavirus disease (COVID-19) is an infectious disease caused by a novel coronavirus (SARS-CoV-2). According to current evidence, it is primarily transmitted between people through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, and direct or indirect contact with these secretions through the three mechanisms previously mentioned in this report. Fever, cough, anosmia (loss of, or change to, sense of smell or taste) chest tightness, myalgia (muscle aches), fatigue and shortness of breath are the main symptoms reported.

Most people infected will experience mild to moderate illness and recover without requiring special treatment. Older people and those with underlying health problems are more likely to develop severe disease.

4 Findings

The reviewer assessed the planning documentation, process and procedures in relation to the risk of exposure to COVID19 infection in relation to the Build to Rent Strategic Housing Development at the former 'Player Wills' site (2.36 hectares) and adjoining lands (0.61 hectares) under the control of Dublin City Council (Figure 1)



Figure 1 Outline of proposed development plans

4.1 General principles

The proposed factors have been taken into consideration within the reviewed documentation:

- The need to keep distances between individuals;
- The geographical limitations of the site;
- Interaction with existing or planned facilities on site such as existing roadways, drainage and utilities routings (see section below on Wastewater plumbing system considerations);
- The need to provide access for emergency services;
- The need to provide emergency escape routes for on-site personnel;
- The need to provide acceptable living conditions for end users.

The most important factors of layout as far as safety aspects are concerned are those to:

- Prevent, limit and/or mitigate escalation of adjacent events (domino);

- Ensure safety within on-site occupied buildings;
- Control access of unauthorised personnel;

4.2 Barrier measures (how to prevent transmission)

It is clear from available evidence and experience, that limiting close contact between infected people and others is central to breaking chains of transmission of the virus causing COVID-19. The prevention of transmission is best achieved by identifying suspect cases as quickly as possible, testing, and isolating infectious cases. In addition, it is critical to identify all close contacts of infected people so that they can be quarantined to limit onward spread and break chains of transmission. By quarantining close contacts, potential secondary cases will already be separated from others before they develop symptoms or they start shedding virus if they are infected, thus preventing the opportunity for further onward spread. The incubation period of COVID-19, which is the time between exposure to the virus and symptom onset, is on average 5-6 days, but can be as long as 14 days. Thus, quarantine should be in place for 14 days from the last exposure to a confirmed case. If it is not possible for a contact to quarantine in a separate living space, self-quarantine for 14 days at home is required; those in self-quarantine may require support during the use of physical distancing measures to prevent the spread of the virus.

The overarching aim of the any site prevention strategy for COVID-19 is to control COVID-19 by suppressing transmission of the virus and preventing associated illness and death. To the best of our understanding, the virus is primarily spread through contact and respiratory droplets. Under some circumstances airborne transmission may occur (such as when aerosol generating procedures are conducted in health care settings or potentially, in indoor crowded poorly ventilated settings elsewhere).

To prevent transmission, WHO recommends a comprehensive set of measures including:

- Identify suspect cases as quickly as possible, test, and isolate all cases (infected people) in appropriate facilities;
- Identify and quarantine all close contacts of infected people and test those who develop symptoms so that they can be isolated if they are infected and require care;
- Use fabric masks in specific situations, for example, in public places where there is community transmission and where other prevention measures, such as physical distancing, are not possible;
- Use of contact and droplet precautions by health workers caring for suspected and confirmed COVID-19 patients, and use of airborne precautions when aerosol generating procedures are performed;

4.3 Shared living space

The following applies to shared kitchen and other shared living spaces. During the rapid rise in COVID-19 illnesses and deaths globally, and notwithstanding recommended precautions, questions are voiced about routes of transmission for this pandemic disease. Inhaling small airborne droplets is probable as a third route of infection, in addition to more widely recognized transmission via larger respiratory droplets and direct contact with infected people or contaminated surfaces. While uncertainties remain regarding the relative contributions of the different transmission pathways, we

argue that existing evidence is sufficiently strong to warrant engineering controls targeting airborne transmission as part of an overall strategy to limit infection risk indoors.

Appropriate building engineering controls include sufficient and effective ventilation, possibly enhanced by particle filtration and air disinfection, avoiding air recirculation and avoiding overcrowding. Often, such measures can be easily implemented and without much cost, but if only they are recognised as significant in contributing to infection control goals. We believe that the use of engineering controls in public buildings, including the proposed outlay we have reviews, in parallel with effective application of other controls (including isolation and quarantine, social distancing and hand hygiene), would be an additional important measure to reduce the likelihood of transmission and thereby protect end-users and tenants of the proposed development property.

The proposed outlay would not be considered shared accommodation as described by the CDC as each private suite is fully self-contained with a toilet and working facilities, thus minimizing risk of infection. Each private suite would not be sharing toilets. As mentioned previously, a further control measure to mitigate risk within the building will warrant the fact that social distancing of 2 metres must be observed. There may also be a restriction on the number of residents permitted into the kitchen space at any one time. Additionally, cleaning measures may additionally reduce the risk of transmission within shared areas.

4.3.1 Potential for Self-Isolation

The accommodation may be used in times of self-isolation and quarantine. The layout of the accommodation being self-contained together with the proposed ventilation system would facilitate isolation without maximizing exposure to theirs in the building. As described in further detail below, accommodation has good ventilation, and each has access to an openable window. They would appear to me to be particularly well suited for self-isolation. Other than the provision of food which could be left at the door, the resident can remain within the suite for the period of self-isolation. They would appear to be uniquely positioned to facilitate such. This will be important for people who are already living there, if they were required to self-isolate quarantine for any reason.

4.4 Wastewater plumbing system considerations

By its very design, the wastewater plumbing system is a harbinger of pathogenic microorganisms with, under some circumstances, the potential to enable airborne transmission of viruses such as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes coronavirus disease 2019 (COVID-19).

The following points have been accounted for to ensure that transmission through the wastewater plumbing system is minimised:

- (1) do not ignore unexplained foul smells in bathrooms, kitchens, or wash areas;
- (2) make sure that all water appliances in bathrooms and kitchens are fitted with a functioning U-bend;

- (3) to prevent the loss of the water trap seal within a U-bend, open a tap on all water appliances for at least 5 s twice a day (morning and evening) paying special attention to floor drains in bathrooms and wet rooms;
- (4) if the wastewater pipework from an appliance appears to be disconnected or open, seal it immediately (i.e., use an elastic rubber glove to cover the end; a plastic bag and some tape will suffice, ensuring the bag has no holes);
- (5) if there appears to be any crack or leak in pipework, seal with tape or glue; and
- (6) continuously monitor whole system performance.

The potential for a substantial viral load within the wastewater plumbing system (and therefore the main sewer system), in combination with the potential for airborne transmission due to aerosolization of the virus, calls for wastewater plumbing systems to be considered as a potential transmission pathway for COVID-19. The interconnectedness of the wastewater plumbing network can facilitate exposure to SARS-CoV-2 within, or even between, buildings. This is of particular concern in high-risk transmission settings such as hospitals and health-care buildings. Following the recommendations set out above will help to minimise the risk of transmission.

4.5 Environment control ventilation strategy

Air conditioning and ventilation are considered effective control strategies for preventing residential infection and ill health in the hierarchy of controls (a framework used in occupational health to prioritize the controls needed for protection of human health, which is applicable also when considering health risks to the public in indoor spaces). If a ventilation system is well maintained the risk of transmission should not be significant. By well maintained, we mean that the system is inspected periodically, the most efficient filters are used, the filters are changed according to manufacturer recommendations, and the duct systems are cleaned periodically (Quian and Zheng, 2018).

Practical recommendations for the operation of building air systems and equipment

4.5.1 Increasing air supply and extraction

In buildings with ventilation systems, an increase in their operating time is recommended. The time schedule should be modified by switching on two hours earlier and switching off later than usual. A better solution is to maintain continuous ventilation 24/7, lowering the flow rate during unoccupied periods when possible. With spring coming soon, with reduced heating and cooling requirements, these practices will have little energy impact as they will remove viral particles from the building and remove them from surfaces where they could have settled. The proposed current design is a 24/7/365 100% extract and 100% fresh air supply (no recirculation) ventilation strategy with controls that eliminates the possibility of potentially contaminated extract air being drawn into the fresh air supply and recirculated back into the space.

There is general agreement that as much air as possible should be introduced into the premises, the key point here being to provide the maximum amount of fresh air per person.

If, as a result of teleworking measures, the number of staff is reduced, it is important not to gather the staff present in small spaces, but to maintain or even increase the distance between the occupants while reinforcing the sanitising effect of the ventilation.

4.5.2 Promote ventilation by opening windows

The main recommendation is to avoid confined and overcrowded spaces. In buildings not equipped with a mechanical ventilation system, it is strongly recommended that windows be opened (more than would normally be done and even at the cost of slight discomfort). For example, the windows can be opened for about 15 minutes when entering a room, especially if it has been previously occupied. It may even be advisable to open the windows, even in rooms with mechanical ventilation to increase air exchange. However, the opening of windows, when present in WCs equipped with natural draught or mechanical extraction, may cause reverse air circulation.

4.5.3 Opening windows under these conditions should be avoided.

Where there are no specific devices, the opening of the toilet window must be accompanied by the opening of windows in other rooms to create a through draught in the building.

4.5.4 Humidification and air conditioning have no appreciable effect.

The transmission of some viruses in a building can be limited by changing the air temperature and relative humidity. This is not the case with COVID-19, as long as the SARS-CoV-2 virus is rather resistant to the conditions of its environment. Only a relative humidity above 80% and a temperature of more than 30°C can have a noticeable effect. However, such values cannot be reached and are not desirable in a building, especially for reasons of comfort. The micro-droplets (0.5 to 10 microns) evaporate quickly, regardless of the relative humidity. The upper airways and nasal mucous membranes are more susceptible to infection when the relative humidity of the ambient air is low (10-20%), which is why it is sometimes advisable to humidify the air (up to 30%).

This indirect need for humidification to combat COVID-19 is not really relevant given the upcoming arrival of spring in Europe. From March onwards we can expect relative humidity above 30% in rooms without humidification. The equipment is not expected to be in operation anyway in the coming weeks and, in fact, no change in set points is required.

4.5.5 Safe use of heat recovery units

Under certain conditions, virus-laden particles can be reintroduced into the building.

Heat recovery systems can reintroduce virus-laden particles back into the air supply system in the presence of leaks. In rotary heat exchangers (including enthalpy wheels) particles on the exhaust air side can be re-suspended and reintroduced into the supply air circuit by means of a heat exchanger.

4.5.6 Deactivate air recirculation

Viral particles circulating in the extract air ducts can be reintroduced into the supply air circuit when air handling units are equipped with a recirculation device. During outbreaks, these recirculation dampers should be closed either via the Central Building Management System (CBMS/CMS) or manually. This action can greatly reduce the heating or cooling capacity of the installation. However, this must be accepted by the occupants as it is more important to ensure their health than to guarantee them optimal thermal comfort.

It should be noted that the recirculation sections of AHUs are sometimes equipped with filters. However, this should not be a sufficient reason to leave the recirculation dampers open, as these filters do not have the necessary HEPA filtration characteristics. Whenever possible, in decentralised systems, local fan coil units should also be shut down to prevent the re-suspension of contaminated particles in the room. This is because these units are equipped with coarse filters that cannot stop fine particles. If it is not possible to switch them off, these units will be included in the room cleaning programme as they can collect particles just like any other surface in the room.

4.5.7 Duct cleaning has no practical effect

There are sometimes inopportune statements recommending that ventilation ducts be cleaned to prevent transmission of SARS-CoV-2 through the ventilation system. Cleaning of ventilation systems is not effective against room-to-room contamination because the ventilation system itself is not a source of contamination if the recommendations given above regarding heat recovery and recirculation devices are followed. It is therefore not necessary to go beyond the usual maintenance and cleaning procedures. It is much more important to increase the fresh air flow rate and avoid recirculation of the air as described above.

4.5.8 Outside air filters do not need to be changed.

In the context of COVID-19 it was asked whether the filters should be replaced and what the protective effect might be in the very rare cases of contamination of the outside air with the virus, for example, when the exhaust air outlets are too close to the air intakes.

The AHUs in modern air-conditioning systems are equipped with high-performance filters immediately after the air intake (class F7 or F8 filter or ISO ePM1) that filter out fine particles from the outside air very well. The particle size of the corona virus (80-160 nm), i.e. PM 0.1, is smaller than the mesh size of the F8 filters (65-90% efficiency for PM1) but most of these small particles are deposited on the fibres of the filter substrate by diffusion mechanisms. In addition, SARS-CoV- 2 particles aggregate with larger particles already trapped on the filter surface. This implies that in the rare cases where outdoor air is contaminated, high-performance filters provide reasonable protection against outdoor air that is generally very low in virus concentration or occasionally contaminated.

For the replacement of these filters, the normal replacement procedure can be followed. Filter clogging is not a source of contamination in this context, but it does reduce the fresh air flow rate, which in itself has a negative effect on indoor contamination.

In summary, the filters should be replaced according to the normal procedure and only when the permissible pressure drop or deadline is exceeded. In conclusion, we do not recommend changing the filters in place or replacing them with filters of another type, nor do we recommend changing them before the normal replacement date.

4.5.9 Apartment ventilation

Continuous Mechanical Ventilation is proposed to be provided to all apartments via an MVHR (Mechanical ventilation with heat recovery) A centrally located continuously running mechanical supply and extract unit provides ventilation to the apartment. Supply air to each individual bedroom and living space shall be provided via grilles incorporated into the ceiling. Air is extracted from all sanitary rooms, kitchen & utility rooms. Cooker hoods will be of the direct to outside type with general central extract back to the MVHR also installed to kitchen areas.

4.5.10 Shared accommodation units Ventilation

Continuous Mechanical extract shall be provided to all shared accommodation units with an extract grille located in the WC. This is part of a centralised system which has its extract located in a plant room.

4.5.11 Amenity Ventilation

Amenity areas will be provided with a local heat recovery ventilation system which provides fresh and extract air to the space. The fresh air shall be either be ducted from roof level or via local louvres depending on their location. For example, the ground floor of PW1 has local louvres which are to be utilised for ventilation.

5 Conclusion

No material gaps were identified during the course of the evaluation of ***BTR-SCR1 Fund, a Sub-Fund of the CTWC MULTI FAMILY ICAV*** planning assessments and supportive documentation. DBTR-SCR1 Fund, a Sub-Fund of the CTWC MULTI FAMILY ICAV and their project team have used accepted best practice methodology in their planning risk assessment to mitigate COVID19 infection of tenants and end users.

The risk attributions are sensible and the pre and post assessment additional controls including the residual risk levels are appropriate. They do not minimise or exaggerate COVID-19 health and enterprise risks.

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APPENDIX 7.1

IRISH WATER CONFIRMATION OF FEASIBILITY AND LETTER OF DESIGN ACCEPTANCE

VOLUME III
APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

Malcolm McCabe
70 Sir John Rogersons Quay
Dublin
Co. Dublin

29 October 2019

Dear Malcolm McCabe,

**Re: Connection Reference No CDS19002980 pre-connection enquiry -
Subject to contract | Contract denied**

Connection for Mixed Use Development of 901 units at 275-289 South Circular Road, Dublin, Co. Dublin.

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at 275-289 South Circular Road, Dublin, Co. Dublin.

Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the network(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network(s) can be facilitated subject to following:

Water

- New connection to the existing network is feasible without upgrade.
- The connection should be from 18" main in South Circular Road

Wastewater

- Separate storm and foul water connection services should be provided for the Development.
- The surface and storm water from the site must be discharged only into the existing storm water network or associated alternative to a combined drainage discharge. The connection arrangement should be agreed with Dublin City County Council Drainage Division.
- At the connection application stage, the applicant is required to provide additional evidence (by way of CCTV survey inclusive of dye testing and calculations) to prove that the current surface area contributing to the combined sewer in Donore Avenue is minimum 1860 m² and when removed from the combined sewer the overall proposed discharge (from the Development CDS19002980 of 901 units and another Development CDS19002978 in the area of 500 units proposed to be connected via the Development) will be less than the current discharge into the combined sewer.

Strategic Housing Development

Irish Water notes that the scale of this development dictates that it is subject to the Strategic Housing Development planning process. Therefore:

- In advance of submitting your full application to An Bord Pleanála for assessment, you must have reviewed this development with Irish Water and received a Statement of Design Acceptance in relation to the layout of water and wastewater services.
- All infrastructure should be designed and installed in accordance with the Irish Water Codes of Practice and Standard Details.

- You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed and appropriate connection fee paid at a later date.

A connection agreement can be applied for by completing the connection application form available at **www.water.ie/connections**. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities.

If you have any further questions, please contact Marina Zivanovic Byrne from the design team on 01 89 25991 or email mzbyrne@water.ie. For further information, visit **www.water.ie/connections**.

Yours sincerely,



Maria O'Dwyer
Connections and Developer Services

Malcolm McCabe
70 Sir John Rogersons Quay
Dublin
Co. Dublin

8 April 2020

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City

www.water.ie

Re: Design Submission for 275-289 South Circular Road, Dublin, Co. Dublin (the “Development”) (the “Design Submission”) / Connection Reference No: CDS19002980

Dear Malcolm McCabe,
Many thanks for your recent Design Submission.
We have reviewed your proposal for the connection(s) at the Development. Based on the information provided, which included the documents outlined in Appendix A to this letter, Irish Water has no objection to your proposals.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before you can connect to our network you must sign a connection agreement with Irish Water. This can be applied for by completing the connection application form at www.water.ie/connections. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities (CRU) (https://www.cru.ie/document_group/irish-waters-water-charges-plan-2018/).

You the Customer (including any designers/contractors or other related parties appointed by you) is entirely responsible for the design and construction of all water and/or wastewater infrastructure within the Development which is necessary to facilitate connection(s) from the boundary of the Development to Irish Water's network(s) (the “**Self-Lay Works**”), as reflected in your Design Submission. Acceptance of the Design Submission by Irish Water does not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.

If you have any further questions, please contact your Irish Water representative:

Name: Alvaro Garcia
Phone: 01 89 25991
Email: agarcia@water.ie

Yours sincerely,



Maria O'Dwyer
Connections and Developer Services

Appendix A

Document Title & Revision

- PW-BMD-ZZ-XX-DR-C-1000 - Site Location Plan
- PW-BMD-ZZ-XX-DR-C-1001 - Roads and Surfaces Plan
- PW-BMD-ZZ-XX-DR-C-1021 - Proposed Foul and Surface Water Drainage Sheet 1
- PW-BMD-ZZ-XX-DR-C-1022 - Proposed Foul and Surface Water Drainage Sheet 2
- PW-BMD-ZZ-XX-DR-C-1030 - Proposed Watermain Layout Sheet 1
- PW-BMD-ZZ-XX-DR-C-1031 - Proposed Watermain Layout Sheet 2
- PW-BMD-ZZ-XX-DR-C-1120 - Proposed Foul Drainage Long Section
- PW-BMD-ZZ-XX-DR-C-1130 - Proposed Watermain Long Sections

For further information, visit www.water.ie/connections

Notwithstanding any matters listed above, the Customer (including any appointed designers/contractors, etc.) is entirely responsible for the design and construction of the Self-Lay Works. Acceptance of the Design Submission by Irish Water will not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.

APPENDIX 8.1

ENVIRONMENTAL RISK ASSESSMENT & WASTE CHARACTERISATION

VOLUME III

APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

Unit 15
Melbourne Business Park
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Environmental Risk Assessment and

Waste Characterisation

Proposed Residential and Retail Development

Player Wills

South Circular Road

Dublin 8

Prepared For: -

CWTC MULTI FAMILY ICAV
(DBTR SCR1 FUND)

MATHESON

70 Sir John Rogerson's Quay
Dublin 2

Prepared By: -

O' Callaghan Moran & Associates
Unit 15 Melbourne Business Park
Model Farm Road
Cork

November 2019

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APPENDIX 5	-	Groundwater Sampling Results
APPENDIX 6	-	Waste Classification Report
APPENDIX 7	-	Dig Plans

1 INTRODUCTION

Viridus Project Management, on behalf of CWTC Multi Family ICAV, requested O’Callaghan Moran & Associates (OCM) to undertake an environmental risk assessment and a waste classification at the former Player Wills Factory on South Circular Road, Dublin 8.

The objectives were to determine the environmental risk presented by previous land use to a proposed residential development and to identify offsite disposal options for any soils/wastes that may have to be removed in the course of the redevelopment.

1.1 Methodology

The scope included a desk study of relevant information, a site inspection and an intrusive site investigations undertaken by Ground Investigations Ireland Ltd (GII) under OCM supervision in May and June 2019, which included the collection and analysis of soil and groundwater samples and ground gas monitoring.

The following data sources reviewed in the desk study:

- Ordnance Survey of Ireland (OSI) Maps.
- Geological Survey of Ireland (GSI) and Teagasc subsoil, geology, aquifer vulnerability and classification maps.
- Environmental Protection Agency (EPA) Envision Database.
- Eastern River Basin District (ERBD) Management Plan,
- The Dublin City Development Plan 2016-2022, and
- Phase 1 and 2 Environmental Assessment Report prepared by AECOM in 2018

The site investigation comprised the installation of trial pits and groundwater monitoring wells; the collection of representative soil and groundwater samples for laboratory analysis and ground gas monitoring. The soil and water samples were analysed at an accredited laboratory.

The assessment of the risk to surface water and groundwater was based on the quality standards set in the European Union Environmental Objectives (Surface Water) Regulations 2009, as amended and the European Union Environmental Objectives (Groundwater) Regulations 2010, as amended. The assessment of risk to soils was based on the Soils Geochemical Atlas of Ireland.

The assessment of the risk presented to construction workers and end users was based on the Land Quality Management/Chartered Institute of Environmental Health (LQM/CIEH)

S4ULs Human Health Risk Assessment-“Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3519. All rights reserved” and the UK Environment Agency Contaminated Land Exposure Assessment (CLEA) guidelines.

The ground gas risk assessment was undertaken in accordance with CIRIA C665 Assessing risks posed by hazardous ground gases to buildings.

The waste classification undertaken by OCM in accordance with the Environmental Protection Agency (EPA) Guidelines on the Classification of Waste (2015).

1.2 Limitations

The assessment did not include all of the site buildings as access was limited due to asbestos removal works that were underway. However the spread of sample locations did facilitate a comprehensive assessment of conditions across the site.

2 SITE DESCRIPTION AND ENVIRONMENTAL SETTING

2.1 Site Location

The site is approximately 2.4 km south-west of Dublin city centre (Figure 2.1). It covers c2.7 hectares (ha) and is bounded to the north by residential dwellings and further north along the western boundary by disused playing pitches; to the north-east by St. Teresa's Church, to the east by St. Catherine's National School and to the east by rows of terraced residential dwellings and to the south by South Circular Road and to the west by residential dwellings. The Bailey Gibson Salvage Yard is located west of the disused playing fields.

2.2 Site Layout

The site layout is shown on Figure 2.2. The main production building is a three storey structure in the south of the site, with warehousing joining the northern side and an office block to the east. There is a second block of warehouses in the north-east of the site. There is a bunded oil storage area along the western site boundary, but the oil tanks have been removed. The remainder of the site is bitumen and concrete paved yard area which was used for car parking and truck delivery.

2.3 Site History

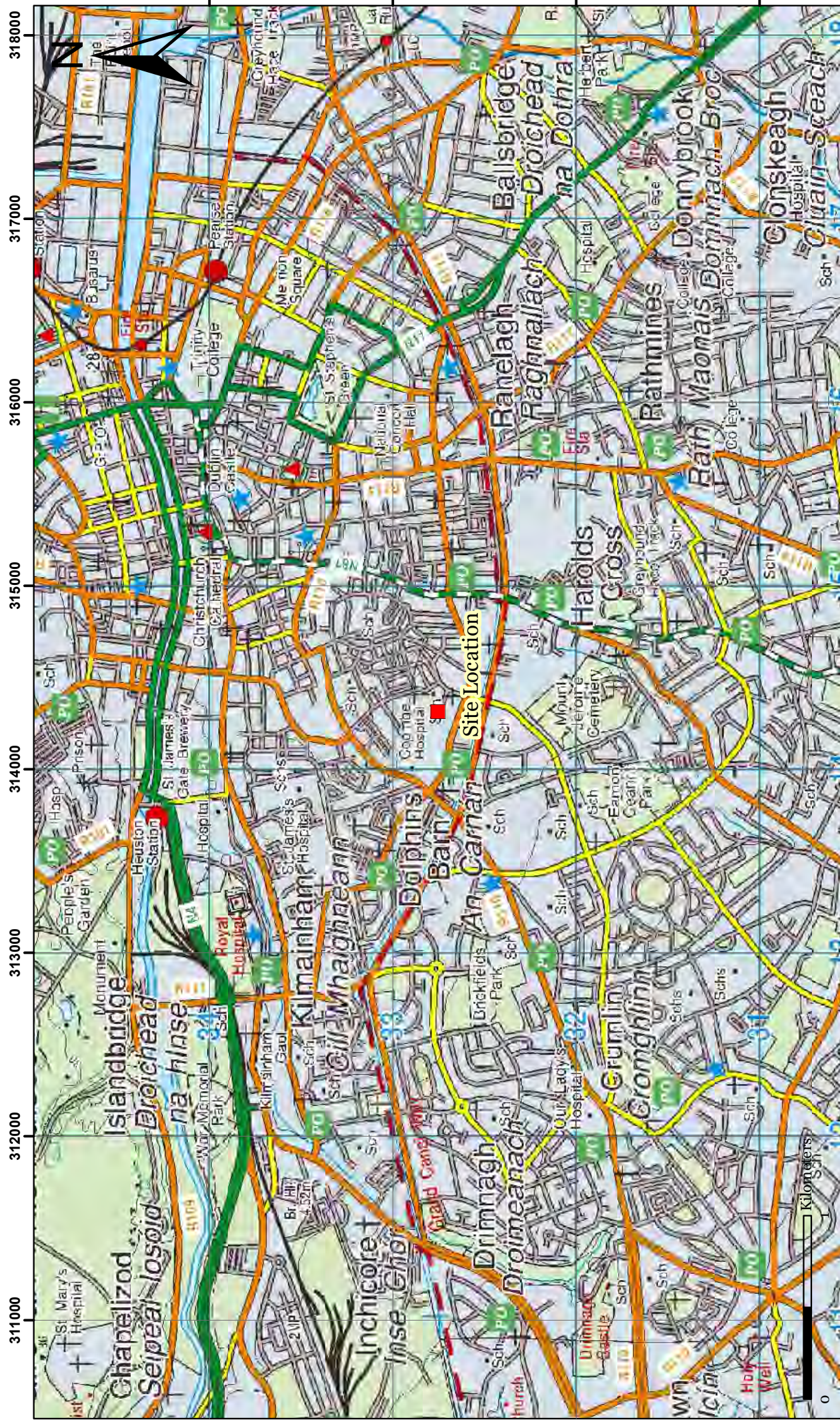
Historical maps and aerial photographs are in Appendix 1. The 1837-1842 series OSI maps show the site as vacant, with residential dwellings surrounding the site. The Rehoboth Tent and Marquee Factory was to the north-west. The 6" Cassini Maps (1888-1913) show the site occupied by a 'Tobacco Factory' with a printing works on the Bailey Gibson site to the west. St Teresa's church was to the north-east and, what is currently a part of the parking area was a garden adjacent to the church. The aerial photographs and satellite images of the years between 1995 and 2019 show the existing layout.

2.4 Geology

2.4.1 Soils and Subsoils

The Teagasc subsoils map (Figure 2.3) indicates the site is covered by Made Ground underlain by Limestone till (TLs). The 2019 site investigations confirmed that the open paved areas are underlain by Made Ground comprising dark brown gravelly clay with occasional red brick fragments, ranging in thickness from c0.9 -1.8m.

The underlying Natural Ground comprises greyish brown silty gravelly CLAY with black angular limestone gravel, which is consistent with the Teagasc soils descriptions for glacial tills. The depth was established to be 5-6m bgl in the groundwater monitoring wells installed as part of the assessment.



 O'Callaghan Moran & Associates, Unit 15 Melbourne Business Park, Model Farm Road, Cork. Tel. (021) 4345366 email: info@ocallaghnamoran.com	CLIENT Hines		Details: ■ Site Location
This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request.	TITLE Site Location (Player Wills)		

Figure 2.1

Figure 2.1

314000



Details: — Site Layout		Figure 2.2	
CLIENT Hines		TITLE Site Layout (Player Wills)	
O'Callaghan Moran & Associates, Unit 15 Melbourne Business Park, Model Farm Road, Cork. Tel. (021) 4345366 email : info@ocallaghanmoran.com 		This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request.	

2.4.2 Bedrock

The site is underlain by the Lucan Limestone Formation, known as “The Calp”, which comprises dark-grey to black, fine-grained, occasionally cherty, micritic limestone. (Figure 2.4). Site investigations have confirmed the GSI description of the bedrock.

2.5 Hydrology

There are no streams or rivers on or adjacent to the site. The Grand Canal is approximately 260m to the south and the River Poddle is 490 m east (Figure 2.5). The river is culverted and flows north to join the River Liffey approximately 1.25km from the site. The Water Body status of the Poddle is not described in the ERBD Management Plan.

2.6 Hydrogeology

2.6.1 Aquifer Classification

The GSI has developed a classification system for aquifers based on the value of the resource and the hydrogeological characteristics. The bedrock aquifer beneath the site is characterised as a Locally Important aquifer which is moderately productive only in Local Zones (**LI**), as shown on Figure 2.6. The ERBD Management Plan shows the site is part of the IE_EA_G_005 Dublin Urban Groundwater Body. The overall status of this waterbody is ‘Good’. There are no recorded groundwater abstractions within 500m of the site.

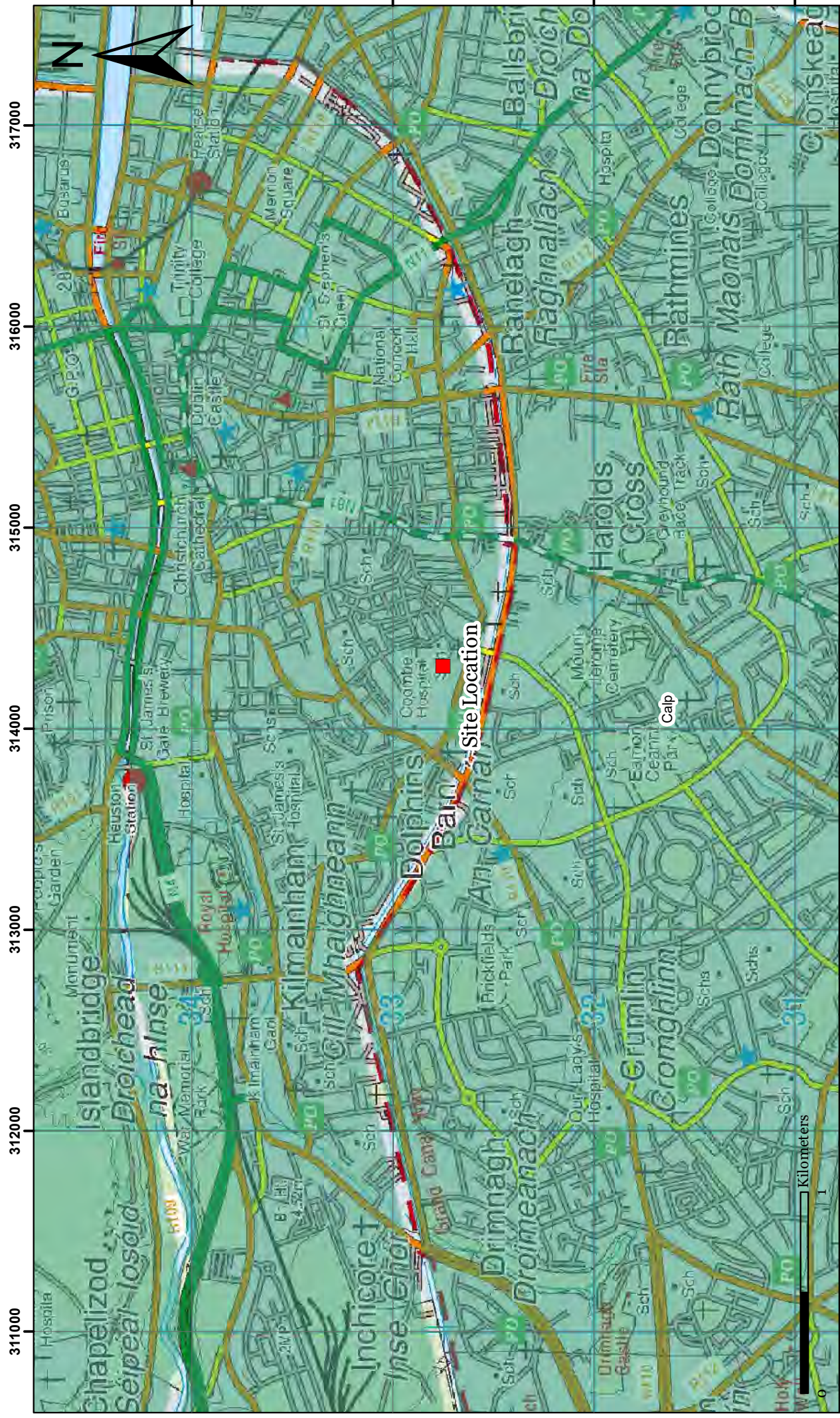
2.7.2 Aquifer Vulnerability

Vulnerability is defined by the GSI as the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities. Vulnerability categories range from Extreme (**E**) to High (**H**) to Moderate (**M**) to Low (**L**) and are dependent on the nature and thickness of subsoils above the water table. The GSI Vulnerability Map (Figure 2.7) indicates that the vulnerability is moderate. The borehole logs for the monitoring wells indicate a depth to bedrock of between 5-6m below ground level which is consistent with the GSI rating.

2.7 Flood Risk

A Strategic Flood Risk Assessment in the Dublin City Development Plan 2016-2022 (DCDP) defines three types or levels of flood zones;

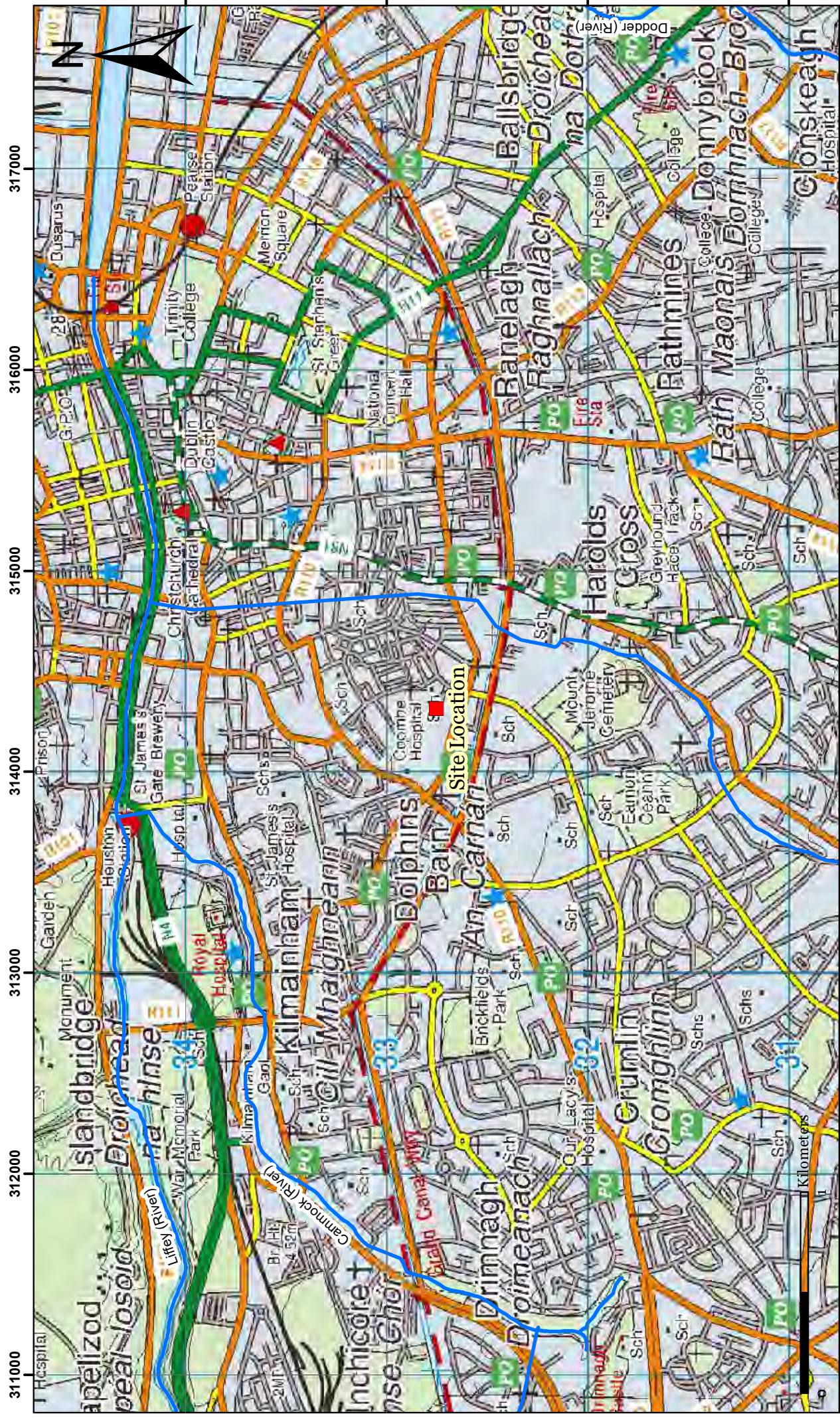
- Flood Zone A – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding);
- Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding); and



CLIENT O'Callaghan Moran & Associates, Unit 15 Melbourne Business Park, Model Farm Road, Cork. Tel. (021) 4345366 email : info@ocallaghanmoran.com	Details: ■ Site Location ■ Calp	CLIENT Hines TITLE Bedrock Geology (Player Wills)
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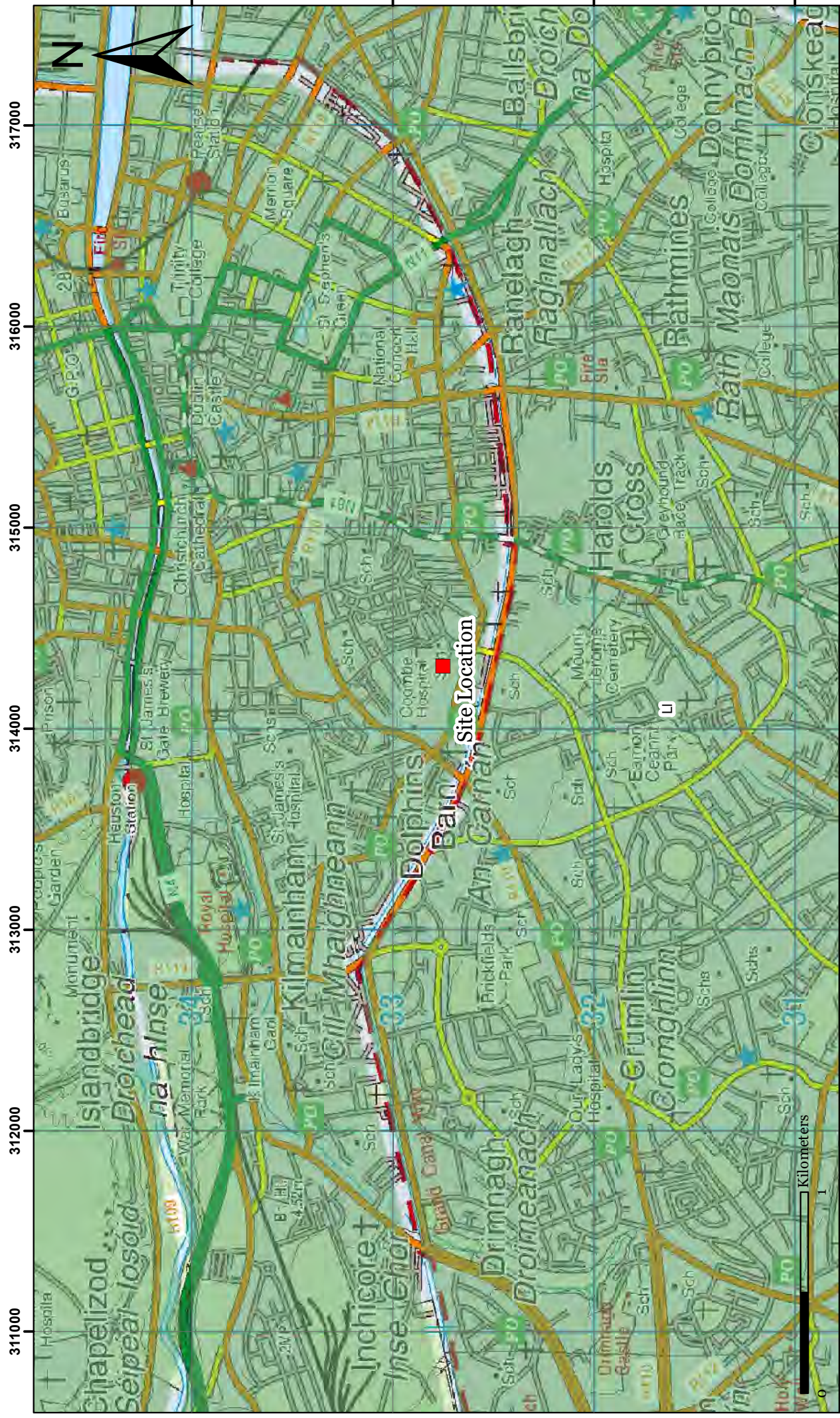
Figure 2.4

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 O'Callaghan Moran & Associates, Unit 15 Melbourne Business Park, Model Farm Road, Cork. Tel. (021) 4345366 email: info@ocallaghanmoran.com		CLIENT Hines		Details: ■ Site Location — Rivers	Figure 2.5
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Figure 2.5



Details: - Site Location - LI - Locally Important Aquifer. Moderately Productive only in Local Zones	CLIENT Hines
TITLE Aquifer Classification (Player Wills)	CLIENT O'Callaghan Moran & Associates, Unit 15 Melbourne Business Park, Model Farm Road, Cork. Tel. (021) 4345366 email : info@ocallaghanmoran.com TITLE This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission of O'Callaghan Moran & Associates and shall be returned upon request.

Figure 2.6



- Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all other areas that are not in zones A or B.
- Defended Area; where defences are in place for future floods

The site is located is not located in a flood risk area.

2.8 Radon

The EPA have prepared a national Radon Risk Map based on 10km² blocks. Radon risk is mapped based on the estimated percentage of homes above the reference level ranging from <1%, 1% - 5%, 5% - 10%, 10% - 20%, and >20%. The EPA caution however that high radon levels can occur in any home in any part of the country, but such homes are more likely to be located in High Radon Areas. The site is located in a Low Radon Risk area, where the reference level is 1% - 5%.

2.9 Ecologically Sensitive/Designated Areas

The designated sites within 10km of the site are shown on Figure 2.8. The nearest site is the South Dublin Bay Special Protection Area (SPA), which is approximately 5km to the east of the site at the nearest point. The River Tolka Estuary SPA and the North Dublin Bay Special Area of Conservation (SAC) and North Bull Island Nature Reserve are approximately 6.8 km north east of the site.



 O'Callaghan Moran & Associates, Unit 15 Melbourne Business Park, Model Farm Road, Cork. Tel. (021) 4345366 email: info@ocallaghanmoran.com		CLIENT Hines		Details: Site Location SPAs SACs		Figure 2.8
TITLE NPWS (Player Wills)						

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3 SOILS ASSESSMENT

3.1 AECOM 2018

In 2018, AECOM completed a site investigation comprising the excavation of two trial pits and the drilling of twelve boreholes at the locations shown on Figure 3.1. At the time it was not possible to carry out intrusive works inside the buildings. Three of the borings (BH-10, BH-11 and BH-16) were converted to ground gas and groundwater monitoring wells.

Made ground was encountered in all the locations, ranging in depth from 0.6 to 1.7m below ground level (bgl). The greatest thickness was in the car park in the north of the site. Superficial deposits comprised soft to stiff light brown / brown slightly sandy gravelly silty clay above stiff dark grey / black slightly sandy gravelly clay with angular cobbles and boulders.

Field screening of the soil samples did not detect the presence of odours or staining and AECOM collected twenty eight soil samples (14no. made ground, 14no. natural ground) for laboratory analysis.

The analytical results were assessed against the Land Quality Management/Chartered Institute of Environmental Health (LQM/CIEH) S4ULs Human Health Risk Assessment-Risk Levels (S4ULs). Marginal exceedances of the risk screening criteria were identified in five of the twenty eight samples for polycyclic aromatic hydrocarbons (PAH), lead in one sample and mercury in another. Asbestos was not detected in any of the samples. Ground gas monitoring indicated that ground gas risk was not significant.

3.2 OCM Site Investigations 2019

Scope

The OCM investigation comprised the excavation of twenty four trial pits at the locations shown on Figure 3.1. TP-16, 17, 18, 19, ,21,22, 23 and 24 were opened in the external yard areas in July 2019 and TP-A-1 to A-6 and B1-B-6 were opened inside the main building and warehouse respectively in September and October 2019, when access to the buildings was gained.

3.3 Ground Conditions

The trial pit logs prepared by OCM are in Appendix 2. Field screening using a Photo Ionisation Detector (PID) did not detect the presence of Volatile Organic Compounds (VOC) at any location and no odours or staining were observed during the investigations.

In the open areas the subsurface comprised a bitumen layer underlain by greyish brown angular Gravel FILL with fragments of red brick and cobbles ranging in depth from 1.1-1.9m bgl. This was underlain by Natural Ground comprising light brown/brown slightly sandy gravelly silty CLAY. The pits extended to 3.5m and while some water strikes were encountered around 1.7- 2.4m (TP-16 and TP-19), the majority of the pits were dry.

Inside the main production building (A-1 to A6) the concrete slab (c0.8m) and was underlain by greyish brown angular Gravel FILL with fragments of red brick and cobbles to a depth of c1.7m bgl. This was underlain by light brown/brown slightly sandy gravelly silty CLAY.

In the warehousing north of the main production building (TP-B-1 to B-6) the concrete slab was c0.3m and was underlain by greyish brown angular Gravel FILL with fragments of red brick and cobbles to a depth of c1.7m, except for trial pits B-5 and B-6 where the fill extended to 2.2m. Where encountered (B1 –B-4) the Natural Ground comprises light brown/brown slightly sandy gravelly silty CLAY.

Groundwater was encountered in the trial pits between 1.9 and 2.2 m bgl and appears to be associated with more gravelly portions of the natural ground layer.

3.4 Sample Collection

Samples of the Made and Natural Ground were collected separately by OCM in accordance with OCM soil sampling protocol, a copy of which is in Appendix 3. They were placed in laboratory prepared containers and stored in coolers prior to shipment to Chemtest Laboratories.

3.5 Laboratory Analysis

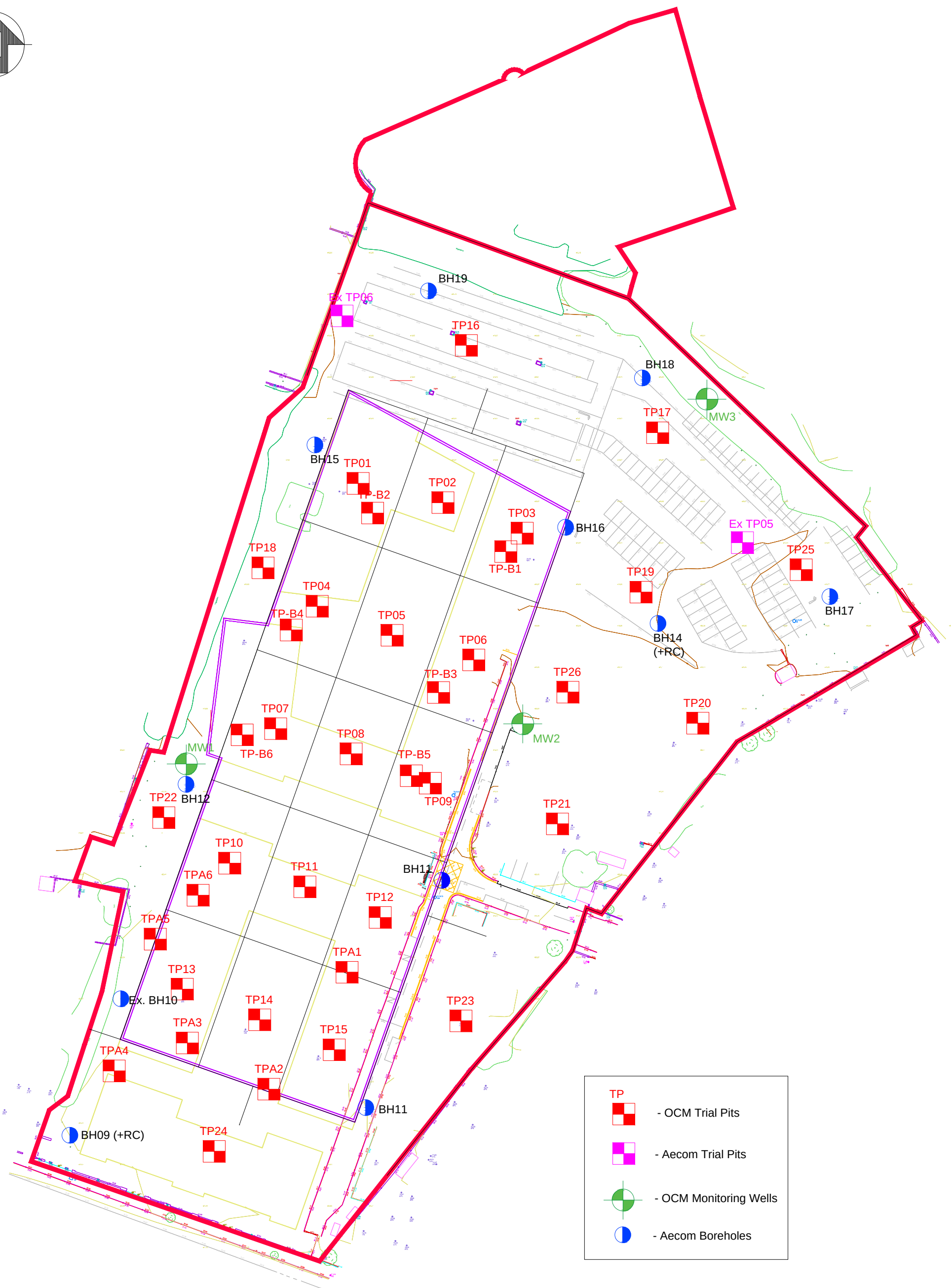
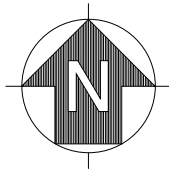
The samples were tested for metals (arsenic, barium, cadmium, chromium, copper, mercury, molybdenum, nickel, lead, antimony, selenium and zinc), total organic carbon (TOC), BTEX (benzene, toluene, ethylbenzene and xylene) aliphatic and aromatic hydrocarbons, polychlorinated biphenyls (PCB), polyaromatic hydrocarbons (PAH) and asbestos. Leachate generated from the samples was tested for metals, chloride, fluoride, soluble sulphate, phenols, dissolved organic carbon (DOC), total dissolved solids (TDS).

This parameter range facilitates an assessment of the environmental and human health risk and potentially hazardous properties of the soils, and also allows a determination of appropriate off-site management options based on the landfill Waste Acceptance Criteria (WAC) applied by landfill operators. The analytical methods were all ISO/CEN approved and the method detection limits were below the relevant guidance/threshold values.

3.6 Results

The full laboratory report is in Appendix 4 along with summary tables that include for comparative purposes the QM/CIEH Human Health Risk Assessment-Risk Levels (S4ULs) for residential end use with home grown produce, which are the most sensitive risk assessment criteria. Tables 3.1 - 3.2 show the samples where the S4ULs were exceeded.

Arsenic exceeded the S4UL in eight samples (TP-17 (1-2m), TP-18, 22, 25 all 0-1m), TP-A3, A6, TP-B2 and B4 all 0-1m)). Aliphatic and aromatic hydrocarbon levels were exceeded in one sample (TP-A5 (0-1m)). PAHs exceeded the S4UL in six samples (TP-17 0-1, and 1-2m) TP-18 and 25 (0-1m) TP-B2 and B4 (0-1m).



O' Callaghan Moran & Associates.
Unit 15 Melbourne Business Park
Model Farm Road, Cork, Ireland.
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CLIENT

Hines

FIGURE No.

3.1

TITLE

OCM Trial Pit and Monitoring Well Layout Rev C (Player Wills)

SCALE

SCALE

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Table 3.1 Metals exceeding S4UL limits

Parameter	Units	TP-17	TP-18	TP-22	TP-25	TP-A3	TP-A6	TP-B2	TP-B4	Residential with home-grown produce LQM/CIEH Suitable 4 Use Levels (S4ULs) [mg/kg DW]		
		Depth (m)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	1 % SOM	2.5% SOM	6 % SOM
Metals												
Antimony	mg/kg	5.0	5.5	2.0	4.7	2.6	7.1	7.6	3.6	NE	NE	NE
Arsenic	mg/kg	48	50	42	44	40	41	45	40	NE	NE	37
Barium	mg/kg	310	250	110	310	160	150	400	220	NE	NE	NE
Cadmium	mg/kg	1.1	1.1	1.5	1.1	1.3	0.93	1.2	1.4	NE	NE	11
Chromium III	mg/kg	28	25	20	29	23	16	21	19	NE	NE	910
Copper	mg/kg	200	200	120	120	110	110	160	140	NE	NE	2,400
Hexavalent Chromium	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NE	NE	6*
Lead	mg/kg	680	620	300	530	370	330	820	860	NE	NE	NE
Molybdenum	mg/kg	6.5	7.7	3.6	6.3	5.9	6.3	5.6	4.9	NE	NE	NE
Nickel	mg/kg	68	71	41	65	52	55	60	63	NE	NE	180*
Selenium	mg/kg	1.3	1.6	1.0	0.89	1.1	1.6	1.2	0.94	NE	NE	250
Zinc	mg/kg	240	270	120	270	140	160	360	160	NE	NE	3,700
Non-Metallic elements												
Boron	mg/kg	2.5	4.6	0.94	1.4	4.2	2.4	2.8	3.7	NE	NE	290

NE denotes Not Established

Table 3.2 Aliphatic and Aromatic Hydrocarbons exceeding S4UL limits

Parameter	Units	TP-A5	Residential <u>with</u> home-grown produce LQM/CIEH Suitable 4 Use Levels (S4ULs) [mg/kg DW]		
	Depth (m)	0.0-1.0	1 % SOM	2.5% SOM	6 % SOM
Aliphatics					
EC 5-6	mg/kg	< 1.0	42	78	160
EC >6-8	mg/kg	< 1.0	100	230	530
EC >8-10	mg/kg	< 1.0	27	65	150
EC >10-12	mg/kg	30.00	130	330	770
EC >12-16	mg/kg	96.00	1,100	2,400	4,300
EC >16-35	mg/kg	269.00	65,000	92,000	110,000
EC >35-44	mg/kg	190.00	65,000	92,000	110,000
Total aliphatics C5-40	mg/kg	590.00	NE	NE	NE
Aromatics					
EC 5-7	mg/kg	< 1.0	70	140	300
EC >7-8	mg/kg	< 1.0	130	290	660
EC >8-10	mg/kg	< 1.0	34	83	190
EC >10-12	mg/kg	24.00	74	180	380
EC >12-16	mg/kg	720	140	330	660
EC >16-21	mg/kg	3,300	260	540	930
EC >21-35	mg/kg	8,900	1,100	1,500	1,700
EC >35-44	mg/kg	590.00	1,100	1,500	1,700
Total aromatics C5-40	mg/kg	14000.00	NE	NE	NE
Aliphatics + Aromatics EC >44-70	mg/kg	14,590	1,600	1,800	1,900
VOCs					
MTBE	mg/kg	< 0.001	NE	NE	NE
Benzene	mg/kg	< 0.001	0.087	0.17	0.37
Toluene	mg/kg	< 0.001	130	290	660
Ethylbenzene	mg/kg	< 0.001	47	110	260
p-Xylene	mg/kg	< 0.001	56	130	310
m-Xylene	mg/kg	< 0.001	59	140	320
o-Xylene	mg/kg	< 0.001	60	140	330

NE denotes Not Established

Table 3.2 PAH exceeding S4UL limits

Parameter	Units	TP-17	TP-17	TP-18	TP-25	TP-B2	TP-B4	Residential with homegrown produce LQM/CIEH Suitable 4 Use Levels (S4ULs) [mg/kg DW]		
	Depth (m)	0.0-1.0	1.0-2.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	1 % SOM	2.5% SOM	6 % SOM
PAH MS										
Naphthalene	mg/kg	0.64	0.68	1.1	0.51	0.41	3.8	2.3*	5.6*	13*
Acenaphthylene	mg/kg	0.12	0.51	0.10	0.16	0.26	< 0.10	170	420	920
Acenaphthene	mg/kg	1.2	1.6	1.6	0.72	0.64	1.6	210	510	1,100
Fluorene	mg/kg	0.77	0.95	1.0	0.45	0.58	1.1	170	400	860
Phenanthrene	mg/kg	7.4	10	12	5.0	7.6	7.9	95	220	440
Anthracene	mg/kg	1.2	2.5	1.8	1.0	1.3	1.9	2,400	5,400	11,000
Fluoranthene	mg/kg	8.1	16	14	6.9	12	7.2	280	560	890
Pyrene	mg/kg	7.0	14	13	6.0	11	6.1	620	1,200	2,000
Benzo(a)anthracene	mg/kg	3.7	7.3	6.5	3.1	6.5	3.2	7.2	11	13
Chrysene	mg/kg	4.1	9.3	7.9	3.7	6.6	3.1	15	22	27
Benzo(bk)fluoranthene	mg/kg	4.3	8.9	7.7	4.0	8.3	3.8	NE	NE	NE
Benzo(a)pyrene (only)	mg/kg	3.3	7.2	6.4	3.2	7.1	3	2.2	2.7	3.0
Indeno(123cd)pyrene	mg/kg	1.8	4.3	3.6	1.8	4.8	2.0	27	36	41
Dibenzo(ah)anthracene	mg/kg	0.35	0.76	0.72	0.36	0.88	0.25	0.24	0.28	0.3
Benzo(ghi)perylene	mg/kg	2.0	4.3	3.6	2.1	4.1	1.7	320	340	350
Coronene	mg/kg	3.4	4.5	9.9	6.0	< 0.10	< 0.10	NE	NE	NE
PAH 17 Total	mg/kg	51	97	94	47	75	48	NE	NE	NE
Mineral Oil (C10-C40)	mg/kg	27	24	36	59	150	230	NE	NE	NE

NE denotes Not Established

3.3.1 Interpretation

While arsenic exceeded the S4UL in seven samples, the levels were below the Teagasc range for arsenic in clean Irish Soils (0.5 -122mg/kg). The levels detected are not considered to be significant. However as part of the site preparatory works the shallow soils in which the arsenic is present will be removed from the site.

Aliphatic and aromatic hydrocarbon levels were exceeded in one sample (TP-A5 0-1m) in the main production building. This appears to be an isolated occurrence, as elevated levels were not detected in the other trial pits in the building.

PAHS exceeded the S4UL in six samples (TP-17 0-1, and 1-2m) TP-18 and 25 (0-1m) TP-B2 and B4 (0-1m). While the exceeding values are marginal, the materials in these locations will be removed during the site preparatory works and will not therefore present a risk to future site users.

4 GROUNDWATER ASSESSMENT

4.1 Scope

The AECOM 2018 assessment was confined to three wells (BH-9, BH-10 and BH-11) in a cluster in the south of the main production building and one (BH-16) to the north of the adjoining warehouse. Groundwater quality was not established in either the vicinity of the bunded oil storage area in the west of the site, or in the north of the site between the buildings and the site boundary.

The OCM assessment comprised the installation and sampling of three additional groundwater monitoring wells (MW-1, MW-2 and MW-3) and the collection and analysis of samples from the four wells installed by AECOM.

4.2 Well Locations

The well locations are shown on Figure 3.1. Based on the likely direction of groundwater, MW-1 was positioned immediately to the north-east of the oil storage bund; MW-2 was to the east of the main production building and MW-3 was along the north-eastern boundary.

4.3 Well Construction

The wells were installed by GII using a track mounted rotary percussion drill rig. The installation was supervised by a GII Engineer and logged in accordance with BS5930. The well logs are in Appendix 5. During the drilling of MW-2 hydrocarbon odours were noted in the subsoils.

uPVC 50 mm diameter standpipes were installed, which were slotted in the bedrock section of the borehole. A gravel filter pack was inserted in the annular space between the boring and the standpipe to a level of 1 m below the top of the bedrock. The solid section of the well pipe was brought flush to ground level and fitted with a landfill gas cap and valve. The wells were fitted with steel covers placed at the ground surface.

4.4 Groundwater Flow Direction

Water levels were recorded in the wells and the data used to calculate the direction of groundwater flow. This confirmed that the direction of flow is from the south-west to north-east as shown on Figure 4.1.

4.5 Sampling Methodology

OCM collected groundwater samples on 22nd of October 2019 in accordance with OCM groundwater sampling protocol, a copy of which is in Appendix 3.

Measurements of groundwater level, pH, temperature and electrical conductivity were undertaken in the field and the results are presented in Table 4.1.

After completion of groundwater level measurements, each well was purged to remove the stagnant water in the well pipe and surrounding gravel pack. Purging is necessary to ensure that the groundwater parameters measured are representative of the formation and not the stagnant water in the monitoring well or surrounding gravel filter.

Table 4.1 Field Hydrochemistry

Parameter	Units	MW-1	MW-2	MW-3	BH-9	BH-10	BH-11	BH-16
Electrical Conductivity	µS/cm	785.40	1254.60	518.16	377.40	456.74	425.41	449.89
Temperature	°c	11.95	11.34	11.85	11.95	12.16	12.32	12.50
pH	(pH units)	7.57	7.47	8.18	7.67	8.10	8.06	8.27
Water Level	mbtoc	1.71	1.06	1.53	1.78	1.81	1.61	1.20

mbtoc denotes meters below top of casing

The samples were placed in laboratory prepared containers and stored in coolers at below 4°C prior to shipment to Chemtest laboratory in the UK. Chain of custody (C.O.C.) documentation was included with the samples.

4.6 Laboratory Analysis

The samples were analysed for dissolved metals (boron, lead, nickel, copper, zinc, arsenic, cadmium, chromium, and mercury), total petroleum hydrocarbons (speciated), PAH, MTBE (methyl tert butyl ether), VOC, BTEX, phenols, pH and, sodium potassium, chloride, sulphide, sulphate, ammonium and nitrate. The parameter range was based on the site history and the need to establish a comprehensive environmental baseline for the groundwater quality. The analytical method detection levels were all below relevant water quality guidance values.

4.7 Results

The full laboratory test reports are in Appendix 5 and the results are presented on Tables 4.2 – 4.5. The tables include Interim Guideline Values (IGV) published by the EPA and the Groundwater Threshold Values (GTV) set out in the European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010), as amended.

The IGVs are not statutory, but were developed to assist in the assessment of impacts on groundwater quality and are based on, but are more conservative than the Drinking Water quality standards. GTVs have only been established for core indicator parameters.

None of the parameters exceeded the GTV in MW-1, 3, BH-9, BH-10 or BH-16. Ammonium was marginally above the IGV in MW-3 and BH_9. Ammonium and sulphate exceeded the GTV in BH-11. Ammonium, naphthalene, aliphatic and aromatic hydrocarbons exceeded the GTV in MW-2. Xylene, chloride, potassium and electrical conductivity exceeded the IGV in MW-2.

Table 4.2 Inorganics and Metals

Physiochemical	Units	MW-1	MW-2	MW-3	BH-9	BH-10	BH-11	BH-16	GTV	IGV
Electrical Conductivity	µS/cm	785.40	1254.60	518.16	377.40	456.74	425.41	449.89	1875	1,000
Temperature	°C	11.95	11.34	11.85	11.95	12.16	12.32	12.50	NE	25
pH	pH units	7.57	7.47	8.18	7.67	8.10	8.06	8.27	NE	≥6.5 and 9.5≤
Inorganic & Metals										
Ammonium	mg/l	0.15	0.45	0.16	0.16	0.14	0.31	0.15	0.175	0.15
Nitrate	mg/l	22	< 0.50	14	20	22	15	12	37.5	25
Chloride	mg/l	19	32	18	22	19	41	19	187.5	30
Sulphate	mg/l	110.00	60.00	110.00	110	110	410	110	187.5	200
Sulphide	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	NE	NE
Sodium	mg/l	20	25	25	24	21	21	26	150	150
Boron	µg/l	160	210	140	140	150	140	130	750	1000
Chromium	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	37.5	30
Arsenic	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.5	10
Lead	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.5	10
Nickel	µg/l	5.6	1.9	2.8	5.1	6.0	3.2	3.4	15	20
Mercury	µg/l	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.75	1
Cadmium	µg/l	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	3.75	5
Copper	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1,500	30
Zinc	µg/l	4.2	2.5	4.0	5.3	4.7	5.6	5.7	75	100
Potassium	mg/l	4.9	6.8	2.9	2.0	1.9	2.0	3.0	NE	5

NE Denotes Not Established

Table 4.3 Polycyclic Aromatic Hydrocarbons (PAH)

PAH	Units	MW-1	MW-2	MW-3	BH-9	BH-10	BH-11	BH-16	GTV	IGV
Naphthalene	µg/l	< 0.10	17	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	1
Acenaphthylene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Acenaphthene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Fluorene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Phenanthrene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Anthracene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	10000
Fluoranthene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	1
Pyrene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Benzo[a]anthracene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Chrysene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Benzo[b]fluoranthene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	0.5
Benzo[k]fluoranthene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	0.05
Benzo[a]pyrene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.0075	NE
Indeno(1,2,3-c,d)Pyrene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	0.05
Dibenz[a,h]Anthracene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Benzo[g,h,i]perylene	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	0.05
Total Of 16 PAH's	µg/l	< 2.0	17	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	0.075	0.1

NE Denotes Not Established

Table 4.4 Aliphatic and Aromatic Hydrocarbons

TPH	Units	MW-1	MW-2	MW-3	BH-9	BH-10	BH-11	BH-16	GTV	IGV
Aliphatic TPH >C5-C6	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aliphatic TPH >C6-C8	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aliphatic TPH >C8-C10	µg/l	< 0.10	32	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aliphatic TPH >C10-C12	µg/l	< 0.10	3.9	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aliphatic TPH >C12-C16	µg/l	130	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aliphatic TPH >C16-C21	µg/l	280	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aliphatic TPH >C21-C35	µg/l	180	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aliphatic TPH >C35-C44	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Total Aliphatic Hydrocarbons	µg/l	580	36	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NE	NE
Aromatic TPH >C5-C7	µg/l	< 0.10	31	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aromatic TPH >C7-C8	µg/l	< 0.10	18	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aromatic TPH >C8-C10	µg/l	< 0.10	1100	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aromatic TPH >C10-C12	µg/l	< 0.10	81	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aromatic TPH >C12-C16	µg/l	33	19	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aromatic TPH >C16-C21	µg/l	85	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aromatic TPH >C21-C35	µg/l	16	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Aromatic TPH >C35-C44	µg/l	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	NE	NE
Total Aromatic Hydrocarbons	µg/l	130	1200	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NE	NE
Total Petroleum Hydrocarbons	µg/l	720	1300	< 10	< 10	< 10	< 10	< 10	7.5	NE
Phenols	µg/l	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	NE	0.5

NE Denotes Not Established

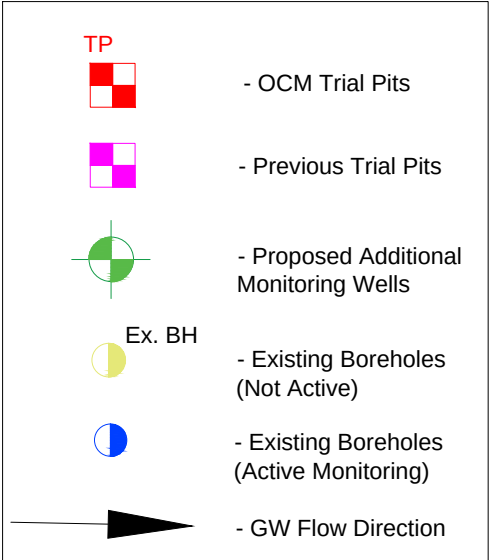
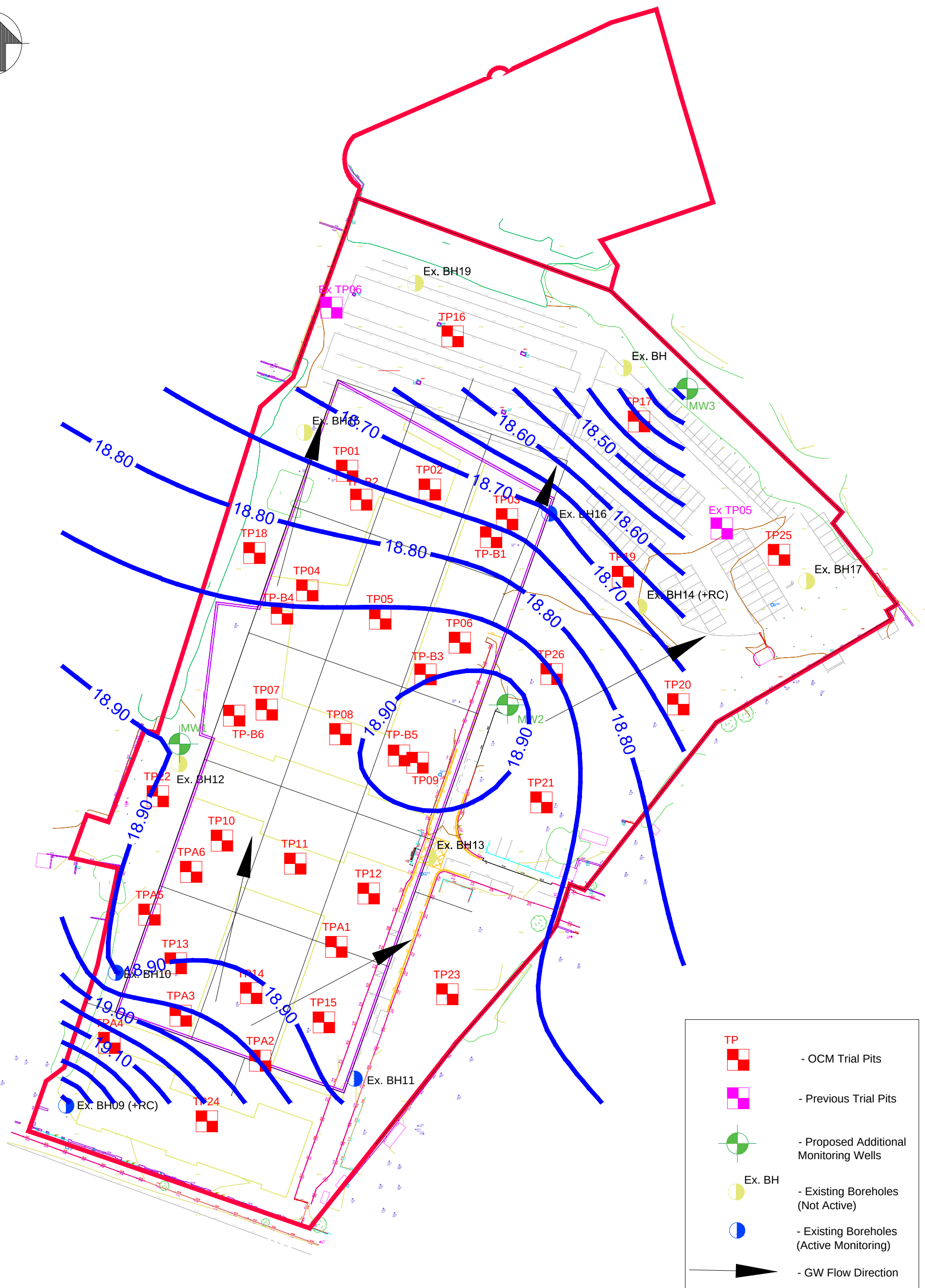
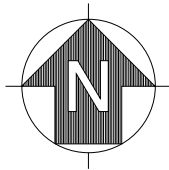
Table 4.5 Volatile Organic Compounds

VOCs	Units	MW-1	MW-2	MW-3	BH-9	BH-10	BH-11	BH-16	GTV	IGV
Dichlorodifluoromethane	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Chloromethane	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Vinyl Chloride	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Bromomethane	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NE	10
Chloroethane	µg/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NE	10
Trichlorofluoromethane	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,1-Dichloroethene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Trans 1,2-Dichloroethene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,1-Dichloroethane	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
cis 1,2-Dichloroethene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Bromochloromethane	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NE	10
Trichloromethane	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,1,1-Trichloroethane	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Tetrachloromethane	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,1-Dichloropropene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Benzene	µg/l	< 1.0	29	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.75	10
1,2-Dichloroethane	µg/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NE	10
Trichloroethene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,2-Dichloropropane	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Dibromomethane	µg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NE	10
Bromodichloromethane	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NE	10
cis-1,3-Dichloropropene	µg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NE	10
Toluene	µg/l	< 1.0	4.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	525	10
Trans-1,3-Dichloropropene	µg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NE	10
1,1,2-Trichloroethane	µg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NE	10
Tetrachloroethene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,3-Dichloropropane	µg/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NE	10
Dibromochloromethane	µg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NE	10
1,2-Dibromoethane	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NE	10
Chlorobenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,1,1,2-Tetrachloroethane	µg/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NE	10
Ethylbenzene	µg/l	< 1.0	4.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
m & p-Xylene	µg/l	< 1.0	220	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
o-Xylene	µg/l	< 1.0	37	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Styrene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Tribromomethane	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Isopropylbenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Bromobenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,2,3-Trichloropropane	µg/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	NE	10
N-Propylbenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
2-Chlorotoluene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,3,5-Trimethylbenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
4-Chlorotoluene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Tert-Butylbenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,2,4-Trimethylbenzene	µg/l	< 1.0	61	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Sec-Butylbenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,3-Dichlorobenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
4-Isopropyltoluene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,4-Dichlorobenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
N-Butylbenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,2-Dichlorobenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,2-Dibromo-3-Chloropropane	µg/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	NE	10
1,2,4-Trichlorobenzene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
Hexachlorobutadiene	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	10
1,2,3-Trichlorobenzene	µg/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NE	10
Methyl Tert-Butyl Ether	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	10	10

NE Denotes Not Established

4.7.1 Interpretation

The elevated ammonium and sulphate in BH-11 and the elevated hydrocarbons, VOC and ammonium in MW-2 appear to be localised. The ammonium, chloride potassium and electrical conductivity in MW-2 may be associated with low oxygen-reducing conditions locally associated with the hydrocarbon contamination, there is no evidence of contamination in BH-16 and MW-3 which are down hydraulic gradient of MW-2. MW-2 is close the proposed basement excavation and if dewatering is required in the basement dig monitoring will be required to ensure the hydrocarbon contamination encountered in MW-2 does not enter the excavation area. If it does enter the excavation then it needs to be collected, treated and disposed accordingly.



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CLIENT

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TITLE

Groundwater Flow Map 2019 (Player Wills)

FIGURE No.

4.1

SCALE

SCALE

5 GROUND GAS ASSESSMENT

AECOM carried out two rounds of ground gas monitoring for methane, carbon dioxide, oxygen and atmospheric pressure and gas flow rate using a Gas Data LSMx gas analyser. The results are presented in Tables 5.1 and 5.2, which include Gas Screening Values (GSV) based on the guideline limits specified in CIRIA C665.

The GSVs for methane and carbon dioxide were determined using the maximum level recorded and the maximum gas flow rates. The gas flow rates ranged from -0.1 - 0.02l/hr. Negative gas flow rates indicate that the pressure of the atmosphere is greater than in the ground i.e. that there is more likely to be air flow into the ground than ground gas ventilating from it.

The GSVs were not exceeded and based on the Modified Wilson and Card Classification System the site falls into the 'Low Risk' category where borehole air flow rates do not to exceed 70l/hr and where the source of generation comprises natural soil, high peat/organic content or "Typical" made ground.

Table 5.1 Ground Gas Monitoring Results (AECOM 10/9/18)

Parameter		Pressure (mb)	Flow rate l/h	H ₂ S ppm	CH ₄ (Peak) %	CO ₂ %	O ₂ %	LEL %
Location	Date / Unit							
BH-10	10/09/2018	1013	0.00	0.00	0.00	0.30	19.90	0.00
BH-11	10/09/2018	1018	0.20	0.00	0.00	0.20	20.40	0.00
BH-16	10/09/2018	1018	0.00	0.00	0.00	0.20	20.50	0.00
GSV					0.0001	0.0003		

Table 5.2 Ground Gas Monitoring Results (AECOM 18/9/18)

Parameter		Pressure (mb)	Flow rate l/h	H ₂ S ppm	CH ₄ (Peak) %	CO ₂ %	O ₂ %	LEL %
Location	Date / Unit							
BH-10	18/09/2018	998	0.00	0.00	0.00	0.40	20.20	0.00
BH-11	18/09/2018	996	0.00	0.00	0.00	0.10	19.70	0.00
BH-16	18/09/2018	1000	0.00	0.00	0.00	0.70	20.70	0.00
GSV					0.0001	0.0007		

OCM completed sampling for Volatile Organic Compounds (VOCs) on October 22nd 2019 using a Photo Ionisation Detector (PID). The results are shown on Table 5.3. NO VOCs were detected in any of the wells.

Table 5.3 VOC readings October 22nd 2019

Location	BH-9	BH-9	BH-10	BH-11	MW-1	MW-2	MW-3
PID in ppm	0	0	0	0	0	0	0

6 WASTE CLASSIFICATION ASSESSMENT

AECOM completed a waste classification assessment in 2018. OCM has incorporated the AECOM classification into an updated assessment for the overall site, including sample locations inside the buildings.

6.1 Waste Classification

The Haz Waste Online Classification Engine, developed in the UK by One Touch Data Ltd, was used to determine the waste classification. This tool was developed specifically to establish whether waste is non-hazardous or hazardous and has been approved for use in Ireland by the Environmental Protection Agency. The full Waste Classification Reports are in Appendix 6 and the results are summarised in Tables 6.1 - 6.3.

The soils at TP-A5 (0-1m) are classified as hazardous and the appropriate List of Waste (LoW) Code for these samples is 17 09 03* (Soil and Stone containing hazardous substances). For the remaining samples soils are classified as non-hazardous and the appropriate LoW is 17 05 04 (Soil and stone other than those mentioned in 17 05 03*).

Table 6.1 Waste Classification (AECOM)

Sample No.	Depth	Classification	LoW Code
BH09	0.5	Non-Hazardous	17 05 04
BH09	1.5	Non-Hazardous	17 05 04
BH10	0.5	Non-Hazardous	17 05 04
BH10	2	Non-Hazardous	17 05 04
BH11	0.5	Non-Hazardous	17 05 04
BH11	1.5	Non-Hazardous	17 05 04
BH12	0.5	Non-Hazardous	17 05 04
BH12	1.5	Non-Hazardous	17 05 04
BH13	1	Non-Hazardous	17 05 04
BH13	3	Non-Hazardous	17 05 04
BH14	1	Non-Hazardous	17 05 04
BH14	2.5	Non-Hazardous	17 05 04
BH15	1	Non-Hazardous	17 05 04
BH15	2	Non-Hazardous	17 05 04
BH16	1	Non-Hazardous	17 05 04
BH16	2.5	Non-Hazardous	17 05 04
BH17	0.5	Non-Hazardous	17 05 04
BH17	2	Non-Hazardous	17 05 04
BH18	1	Non-Hazardous	17 05 04
BH18A	0.5	Non-Hazardous	17 05 04
BH18A	2.5	Non-Hazardous	17 05 04
BH19	0.5	Non-Hazardous	17 05 04
BH19	2	Non-Hazardous	17 05 04
TP05	0.6-1.1	Non-Hazardous	17 05 04
TP05	1.4-2.25	Non-Hazardous	17 05 04
TP06	0.4-1.1	Non-Hazardous	17 05 04

Table 6.2 Waste Classification (OCM)

Sample No.	Depth	Classification	LoW Code
TP-16	0.0-1.0	Non-Hazardous	17 05 04
TP-16	1.0-2.0	Non-Hazardous	17 05 04
TP-17	0.0-1.0	Non-Hazardous	17 05 04
TP-17	1.0-2.0	Non-Hazardous	17 05 04
TP-18	0.0-1.0	Non-Hazardous	17 05 04
TP-18	1.0-2.0	Non-Hazardous	17 05 04
TP-19	0.0-1.0	Non-Hazardous	17 05 04
TP-19	1.0-2.0	Non-Hazardous	17 05 04
TP-20	0.0-1.0	Non-Hazardous	17 05 04
TP-20	1.0-2.0	Non-Hazardous	17 05 04
TP-20	2.0-3.0	Non-Hazardous	17 05 04
TP-22	0.0-1.0	Non-Hazardous	17 05 04
TP-22	1.0-2.0	Non-Hazardous	17 05 04
TP-23	0.0-1.0	Non-Hazardous	17 05 04
TP-23	1.0-2.0	Non-Hazardous	17 05 04
TP-23	2.0-3.0	Non-Hazardous	17 05 04
TP-25	0.0-1.0	Non-Hazardous	17 05 04
TP-25	1.0-2.0	Non-Hazardous	17 05 04

TP-A1	0.0-1.0	Non-Hazardous	17 05 04
TP-A1	1.0-2.0	Non-Hazardous	17 05 04
TP-A2	0.0-1.0	Non-Hazardous	17 05 04
TP-A2	1.0-2.0	Non-Hazardous	17 05 04
TP-A3	0.0-1.0	Non-Hazardous	17 05 04
TP-A3	1.0-2.0	Non-Hazardous	17 05 04
TP-A4	0.0-1.0	Non-Hazardous	17 05 04
TP-A4	1.0-2.0	Non-Hazardous	17 05 04
TP-A5	0.0-1.0	Hazardous	17 05 03
TP-A5	1.0-2.0	Non-Hazardous	17 05 04
TP-A6	0.0-1.0	Non-Hazardous	17 05 04
TP-A6	1.0-2.0	Non-Hazardous	17 05 04

6.2 Waste Acceptance Criteria

The results of the WAC testing are presented in Table 6.3 - 6.7, which includes for comparative purposes the WAC for Inert, Non Hazardous and Hazardous Waste Landfills pursuant to Article 16 of the EU Landfill Directive 1999/31/EC Annex II that establishes criteria and procedures for the acceptance of waste at landfills.

Twenty nine of the forty two samples meet the inert landfill WAC, while thirteen of the samples exceeded the inert WAC for different parameters.

Table 6.3 WAC Results (Aecom)

Parameter	Unit	BH09	BH09	BH10	BH10	BH11	BH11	BH12	BH12	BH13	BH13	BH14	BH14	BH15	Inert Landfill	Non-Hazardous Landfill	Hazardous Landfill
Depth	m	0.5	1.5	0.5	2	0.5	1.5	0.5	1.5	1	3	1	2.5	1			
		Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom			
Antimony	mg/kg	0.03	< 0.02	0.03	0.03	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.03	< 0.02	0.04	0.25	0.06	0.7	5
Arsenic	mg/kg	0.138	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	0.027	< 0.025	0.229	< 0.025	0.117	0.5	2	25
Barium	mg/kg	0.05	< 0.03	0.07	< 0.03	0.14	< 0.03	< 0.03	< 0.03	< 0.03	0.57	0.05	< 0.03	0.13	20	100	300
Cadmium	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	1	5
Chromium	mg/kg	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	0.13	< 0.015	< 0.015	0.5	10	70
Copper	mg/kg	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.17	< 0.07	0.25	2	50	100
Lead	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.5	10	50
Molybdenum	mg/kg	0.42	0.27	0.16	0.39	0.24	0.39	0.53	0.28	0.53	0.24	0.18	0.44	0.44	0.5	10	30
Nickel	mg/kg	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.4	10	40
Selenium	mg/kg	0.04	0.05	0.05	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.41	< 0.03	< 0.03	< 0.03	0.1	0.5	7
Zinc	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03	4	50	200
Mercury	mg/kg	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0006	0.0002	< 0.0001	< 0.0001	0.01	0.2	2
Phenol	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1	NE	NE
Fluoride	mg/kg	< 3	< 3	< 3	< 3	< 3	4	< 3	< 3	4	6	4	< 3	< 4	10	150	500
Chloride	mg/kg	< 3	< 3	7	4	6	4	< 3	< 3	5	184	9	6	6	800	15,000	25,000
Sulphate	mg/kg	129.9	22.3	474.1	9.7	943.9	31.8	52.8	28.7	148.6	371.7	239.1	21.3	220.4	1000*	20000*	50,000
DOC **	mg/kg	40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	50	< 20	60	500	800	1,000
pH	pH units	8.05	8.54	8.5	8.6	8.29	8.5	8.24	8.74	8.79	8.29	9.32	8.41	7.75	NE	NE	NE
TDS ***	mg/kg	1370	840	1141	440	1959	780	1020	700	450	1411	0	1191	1320	4,000	60,000	100,000
TOC	%	5.81	0.67	0.86	0.64	1.38	0.51	0.63	0.46	0.43	0.63	2.64	0.57	6.24	3	NE	6
Benzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
Toluene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
Ethylbenzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
m/p-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
o-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
PCB Total of 7	mg/kg	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	1	NE	NE
Total 17 PAH's	mg/kg	3.05	< 0.64	42.24	< 0.64	5.06	< 0.64	1.35	< 0.64	1.57	< 0.64	28.76	< 0.64	21.63	NE	NE	NE
Mineral Oil	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	500	NE	NE
Asbestos	% mass	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NE	NE	NE

NAD denotes No Asbestos Detected

* denotes sulphate level exceeding inert waste limit may be considered as complying if the TDS value does not exceed 6,000mg/kg at L/S = 10l/kg.

** denotes a higher limit may be accepted provided the DOC values of 500mg/kg is achieved

*** denotes TDS. The values for TDS can be used alternative to sulphate and chloride.

Table 6.4 WAC Results (Aecom continued)

Parameter	Unit	BH18	BH18A	BH18A	BH19	BH19	TP05	TP05	TP06	BH16	BH16	BH17	BH17	BH15	Inert Landfill	Non-Hazardous Landfill	Hazardous Landfill
Depth	m	1	0.5	2.5	0.5	2	0.6-1.1	1.4-2.25	0.4-1.1	1	2.5	0.5	2	2			
		Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom	Aecom			
Antimony	mg/kg	0.1	0.11	< 0.02	< 0.02	< 0.02	0.18	< 0.02	0.07	0.04	< 0.02	0.03	< 0.02	< 0.02	0.06	0.7	5
Arsenic	mg/kg	0.211	0.097	< 0.025	0.076	< 0.025	0.097	< 0.025	0.067	0.185	< 0.025	0.099	< 0.025	< 0.025	0.5	2	25
Barium	mg/kg	0.08	0.21	< 0.03	< 0.03	< 0.03	0.07	< 0.03	0.05	0.05	< 0.03	0.06	< 0.03	< 0.03	20	100	300
Cadmium	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	1	5
Chromium	mg/kg	0.042	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	0.5	10	70
Copper	mg/kg	0.69	0.16	< 0.07	< 0.07	< 0.07	0.14	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	2	50	100
Lead	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.5	10	50
Molybdenum	mg/kg	0.33	0.37	0.27	< 0.02	0.17	0.32	0.49	0.28	0.08	0.59	0.23	0.27	0.35	0.5	10	30
Nickel	mg/kg	0.07	0.04	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.4	10	40
Selenium	mg/kg	0.1	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.1	0.5	7
Zinc	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	4	50	200
Mercury	mg/kg	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.01	0.2	2
Phenol	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1	NE	NE
Fluoride	mg/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 6	< 7	7	< 3	< 5	10	150	500
Chloride	mg/kg	51	8	< 3	< 3	< 3	3	< 3	< 3	6	7	< 3	6	4	800	15,000	25,000
Sulphate	mg/kg	259.2	136.3	7.5	29.9	3.9	231.2	37.8	163.3	67.9	84.6	112.3	131.5	27.4	1000*	20000*	50,000
DOC **	mg/kg	110	80	< 20	< 20	< 20	60	< 20	< 20	20	30	< 20	< 20	< 20	500	800	1,000
pH	pH units	10.92	8.17	8.26	9.48	8.48	7.76	8.15	7.77	9.46	8.75	8.23	8.48	8.61	NE	NE	NE
TDS ***	mg/kg	2159	1210	650	490	840	1250	470	850	1511	1421	940	720	430	4,000	60,000	100,000
TOC	%	2.04	3.52	0.68	0.27	0.19	13.87	0.38	11.92	0.41	0.39	6.87	0.32	0.36	3	NE	6
Benzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
Toluene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
Ethylbenzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
m/p-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
o-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
PCB Total of 7	mg/kg	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	1	NE	NE
Total 17 PAH's	mg/kg	6.43	40.78	< 0.64	< 0.64	< 0.64	10.59	< 0.64	35.67	1.38	< 0.64	7.73	< 0.64	< 0.64	NE	NE	NE
Mineral Oil	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	500	NE	NE
Asbestos	% mass	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NE	NE	NE

NAD denotes No Asbestos Detected

* denotes sulphate level exceeding inert waste limit may be considered as complying if the TDS value does not exceed 6,000mg/kg at L/S = 10l/kg.

*** denotes a higher limit may be accepted provided the DOC values of 500mg/kg is achieved

**** denotes TDS. The values for TDS can be used alternative to sulphate and chloride.

Table 6.5 WAC Results (OCM)

Parameter	Unit	TP-16	TP-16	TP-17	TP-17	TP-18	TP-18	TP-19	TP-19	TP-20	TP-20	TP-22	Inert Landfill	Non-Hazardous Landfill	Hazardous Landfill
Depth	m	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	0.0-1.0	1.0-2.0			
Antimony	mg/kg	< 0.010	< 0.010	0.046	0.053	< 0.010	< 0.010	< 0.010	< 0.010	0.016	0.016	< 0.010	0.06	0.7	5
Arsenic	mg/kg	0.051	< 0.050	0.052	0.069	0.095	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.091	0.5	2	25
Barium	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	20	100	300
Cadmium	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.04	1	5
Chromium	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.5	10	70
Copper	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	0.071	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	2	50	100
Lead	mg/kg	< 0.010	< 0.010	< 0.010	0.035	0.054	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.5	10	50
Molybdenum	mg/kg	< 0.050	0.11	0.11	0.080	0.29	0.12	< 0.050	0.16	0.32	0.24	0.078	0.5	10	30
Nickel	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.4	10	40
Selenium	mg/kg	< 0.010	< 0.010	0.015	0.012	0.021	0.083	< 0.010	< 0.010	< 0.010	0.014	0.15	0.1	0.5	7
Zinc	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	4	50	200
Mercury	mg/kg	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0052	0.01	0.2	2
Phenol	mg/kg	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	1	NE	NE
Fluoride	mg/kg	1.3	2.9	2.1	3.2	3.2	2.4	2.9	2.6	5.7	7.7	3.4	10	150	500
Chloride	mg/kg	< 10	11	11	11	13	14	< 10	< 10	23	15	< 10	800	15,000	25,000
Sulphate	mg/kg	31	18	180	140	310	44	32	22	35	34	60	1000*	20000*	50,000
DOC **	mg/kg	69	67	90	100	170	61	86	99	85	65	75	500	800	1,000
pH	pH units	8.8	8.5	8.2	8.2	8.1	8.7	8.5	8.5	8.3	8.4	8.4	NE	NE	NE
TDS ***	mg/kg	470	650	1100	1100	1500	640	530	710	780	780	1400	4,000	60,000	100,000
TOC	%	< 0.20	0.52	3.9	8.9	12	0.98	1.4	0.75	14	0.57	0.64	3	NE	6
Benzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
Toluene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
Ethylbenzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
m/p-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
o-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
PCB Total of 7	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1	NE	NE
Total 17 PAH's	mg/kg	< 2.0	< 2.0	51	97	94	< 2.0	6.1	< 2.0	< 2.0	< 2.0	5.7	NE	NE	NE
Mineral Oil	mg/kg	< 10	< 10	150	98	120	< 10	150	< 10	60	< 10	190	500	NE	NE
Asbestos	% mass	NAD	NAD	NAD	NAD	0.001	NAD	NAD	NAD	NAD	NAD	NAD	NE	NE	NE

NAD denotes No Asbestos Detected

* denotes sulphate level exceeding inert waste limit may be considered as complying if the TDS value does not exceed 6,000mg/kg at L/S = 10l/kg.

** denotes a higher limit may be accepted provided the DOC values of 500mg/kg is achieved

*** denotes TDS. The values for TDS can be used alternative to sulphate and chloride.

Table 6.6 WAC Results (OCM Continued)

Parameter	Unit	TP-A1	TP-A1	TP-A2	TP-A2	TP-A3	TP-A3	TP-A4	TP-A4	TP-A5	TP-A5	TP-A6	TP-A6	TP-23	TP-23	TP-23	Inert Landfill	Non-Hazardous Landfill	Hazardous Landfill
Depth	m	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	2.0-3.0			
Antimony	mg/kg	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM			
Arsenic	mg/kg	< 0.010	0.016	< 0.010	< 0.010	0.013	< 0.010	0.011	0.018	0.014	0.010	< 0.010	< 0.010	0.016	< 0.010	< 0.010	0.06	0.7	5
Barium	mg/kg	< 0.050	0.093	< 0.050	< 0.050	0.095	< 0.050	0.078	0.076	0.068	0.062	< 0.050	< 0.050	0.051	< 0.050	< 0.050	0.5	2	25
Bismuth	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	20	100	300
Cadmium	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.04	1	5
Chromium	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.5	10	70
Copper	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	2	50	100
Lead	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.5	10	50
Molybdenum	mg/kg	< 0.050	0.12	0.13	0.10	0.081	0.15	0.12	0.10	< 0.050	< 0.050	0.14	0.32	0.28	0.35	0.35	0.5	10	30
Nickel	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.4	10	40
Selenium	mg/kg	0.021	0.062	0.020	0.023	0.054	0.020	0.11	0.053	0.056	0.032	0.023	0.020	< 0.010	< 0.010	< 0.010	0.1	0.5	7
Zinc	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	4	50	200
Mercury	mg/kg	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.01	0.2	2
Phenol	mg/kg	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	1	NE	NE
Fluoride	mg/kg	4.8	1.8	2.2	2.7	2.2	3.2	1.2	48	10	8.0	2.6	3.9	4.0	4.0	11	10	150	500
Chloride	mg/kg	83	65	83	43	64	50	43	71	33	71	32	54	15	21	11	800	15,000	25,000
Sulphate	mg/kg	490	830	180	290	880	220	3500	1600	1400	450	1600	390	320	86	92	1000*	20000*	50,000
DOC **	mg/kg	< 50	52	< 50	< 50	< 50	< 50	64	< 50	< 50	< 50	< 50	67	110	99	83	500	800	1,000
pH	pH units	8.0	8.3	10.2	8.5	7.9	8.2	7.6	8.4	7.7	7.8	8.9	8.0	8.2	8.4	8.6	NE	NE	NE
TDS ***	mg/kg	1800	710	2000	970	1900	710	4100	2500	2500	1300	2300	1200	1300	910	840	4,000	60,000	100,000
TOC	%	5.1	0.61	0.83	0.91	5.8	0.95	5.2	5.8	6.1	4.9	6.7	4.5	3.8	0.54	0.74	3	NE	6
Benzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
Toluene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
Ethylbenzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
m/p-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
o-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
PCB Total of 7	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1	NE	NE
Total 17 PAH's	mg/kg	3.9	< 2.0	11	< 2.0	3.8	< 2.0	4.0	22	11	30	2.6	< 2.0	< 2.0	< 2.0	< 2.0	NE	NE	NE
Mineral Oil	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10	< 10	590	< 10	70	< 10	< 10	16	< 10	78	500	NE	NE
Asbestos	% mass	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NE	NE	NE

NAD denotes No Asbestos Detected

* denotes sulphate level exceeding inert waste limit may be considered as complying if the TDS value does not exceed 6,000mg/kg at L/S = 10l/kg.

*** denotes a higher limit may be accepted provided the DOC values of 500mg/kg is achieved

**** denotes TDS. The values for TDS can be used alternative to sulphate and chloride.

Table 6.7 WAC Results (OCM continued)

Parameter	Unit	TP-B1	TP-B1	TP-B2	TP-B2	TP-B3	TP-B3	TP-B4	TP-B4	TP-B5	TP-B5	TP-B6	TP-B6	TP-25	Inert Landfill	Non-Hazardous Landfill	Hazardous Landfill
Depth	m	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	0.0-1.0	1.0-2.0	1.0-2.0			
		OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM	OCM			
Antimony	mg/kg	0.013	0.020	0.052	< 0.010	0.017	< 0.010	0.031	< 0.010	0.027	< 0.010	0.043	0.012	0.037	0.06	0.7	5
Arsenic	mg/kg	0.099	0.063	0.061	< 0.050	0.14	< 0.050	0.11	< 0.050	0.19	< 0.050	0.20	0.099	< 0.050	0.5	2	25
Barium	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	20	100	300
Cadmium	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.04	1	5
Chromium	mg/kg	0.057	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.5	10	70
Copper	mg/kg	< 0.050	< 0.050	0.12	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	2	50	100
Lead	mg/kg	< 0.010	< 0.010	0.028	< 0.010	< 0.010	< 0.010	0.012	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.5	10	50
Molybdenum	mg/kg	< 0.050	0.13	0.17	0.26	0.099	0.13	0.089	0.098	0.13	0.14	0.089	0.095	0.11	0.5	10	30
Nickel	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.4	10	40
Selenium	mg/kg	0.020	0.015	0.015	< 0.010	0.053	0.020	0.024	0.025	0.041	< 0.010	0.061	0.015	< 0.010	0.1	0.5	7
Zinc	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	4	50	200
Mercury	mg/kg	0.0074	0.0079	0.0082	0.0079	0.0085	0.0091	0.010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.01	0.2	2
Phenol	mg/kg	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	1	NE	NE
Fluoride	mg/kg	2.5	2.2	< 1.0	1.5	1.2	1.7	1.4	1.3	2.1	2.0	1.6	1.6	2.5	10	150	500
Chloride	mg/kg	50	12	21	23	35	19	< 10	< 10	28	< 10	26	17	14	800	15,000	25,000
Sulphate	mg/kg	230	280	530	490	580	270	810	110	530	75	500	110	110	1000*	20000*	50,000
DOC **	mg/kg	170	120	240	220	140	220	120	490	210	250	110	170	74	500	800	1,000
pH	pH units	8.8	7.8	7.8	8.4	7.8	7.9	7.7	8.5	8.9	8.5	7.7	8.1	8.5	NE	NE	NE
TDS ***	mg/kg	1200	1600	1400	1400	1700	1100	1700	780	1200	710	1300	1300	1100	4,000	60,000	100,000
TOC	%	9.9	9.6	2.1	0.81	5.1	1.0	11	0.49	6.4	0.80	8.1	5.7	0.59	3	NE	6
Benzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
Toluene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
Ethylbenzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
m/p-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
o-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	NE	NE
PCB Total of 7	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1	NE	NE
Total 17 PAH's	mg/kg	13	23	75	< 2.0	7.3	< 2.0	48	< 2.0	5.1	< 2.0	7.6	< 2.0	< 2.0	NE	NE	NE
Mineral Oil	mg/kg	< 10	44	150	< 10	45	< 10	230	< 10	14	< 10	< 10	< 10	< 10	500	NE	NE
Asbestos	% mass	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	< 0.001	0.001	< 0.001	< 0.001	NAD	NE	NE	NE

NAD denotes No Asbestos Detected

* denotes sulphate level exceeding inert waste limit may be considered as complying if the TDS value does not exceed 6,000mg/kg at L/S = 10l/kg.

** denotes a higher limit may be accepted provided the DOC values of 500mg/kg is achieved

*** denotes TDS. The values for TDS can be used alternative to sulphate and chloride.

6.3 Waste Management Options

Dig plans are in Appendix 7 and the waste management options are listed in Table 6.8. All the options are subject to approval of the waste facility operators. Class A waste are suitable either for retention on-site or disposal to EPA inert licensed landfill. Class B-1 waste are suitable for disposal to inert waste landfills that have EPA approval for increased WAC limits. Class C Waste are suitable for disposal to EPA licensed non-hazardous waste landfill. Class C-1 wastes contain asbestos and must be sent for disposal outside of Ireland to a facility licenced to accept such material.

Sample No.	Depth	Classification	LoW Code	Category	Sample No.	Depth	Classification	LoW Code	Category
BH09	0.5	Non-Hazardous	17 05 04	B-1	TP-20	0.0-1.0	Non-Hazardous	17 05 04	C
BH09	1.5	Non-Hazardous	17 05 04	A	TP-20	1.0-2.0	Non-Hazardous	17 05 04	A
BH10	0.5	Non-Hazardous	17 05 04	A	TP-20	2.0-3.0	Non-Hazardous	17 05 04	A
BH10	2	Non-Hazardous	17 05 04	A	TP-22	0.0-1.0	Non-Hazardous	17 05 04	B-1
BH11	0.5	Non-Hazardous	17 05 04	A	TP-22	1.0-2.0	Non-Hazardous	17 05 04	B-1
BH11	1.5	Non-Hazardous	17 05 04	A	TP-23	0.0-1.0	Non-Hazardous	17 05 04	B-1
BH12	0.5	Non-Hazardous	17 05 04	B-1	TP-23	1.0-2.0	Non-Hazardous	17 05 04	A
BH12	1.5	Non-Hazardous	17 05 04	A	TP-23	2.0-3.0	Non-Hazardous	17 05 04	A
BH13	1	Non-Hazardous	17 05 04	B-1	TP-25	0.0-1.0	Non-Hazardous	17 05 04	C-1
BH13	3	Non-Hazardous	17 05 04	C	TP-25	1.0-2.0	Non-Hazardous	17 05 04	A
BH14	1	Non-Hazardous	17 05 04	A	TP-A1	0.0-1.0	Non-Hazardous	17 05 04	A
BH14	2.5	Non-Hazardous	17 05 04	A	TP-A1	1.0-2.0	Non-Hazardous	17 05 04	A
BH15	1	Non-Hazardous	17 05 04	C	TP-A2	0.0-1.0	Non-Hazardous	17 05 04	A
BH15	2	Non-Hazardous	17 05 04	A	TP-A2	1.0-2.0	Non-Hazardous	17 05 04	A
BH16	1	Non-Hazardous	17 05 04	A	TP-A3	0.0-1.0	Non-Hazardous	17 05 04	A
BH16	2.5	Non-Hazardous	17 05 04	B-1	TP-A3	1.0-2.0	Non-Hazardous	17 05 04	A
BH17	0.5	Non-Hazardous	17 05 04	C	TP-A4	0.0-1.0	Non-Hazardous	17 05 04	C
BH17	2	Non-Hazardous	17 05 04	A	TP-A4	1.0-2.0	Non-Hazardous	17 05 04	C
BH18	1	Non-Hazardous	17 05 04	B-1	TP-A5	0.0-1.0	Hazardous	17 05 03	D
BH18A	0.5	Non-Hazardous	17 05 04	B-1	TP-A5	1.0-2.0	Non-Hazardous	17 05 04	A
BH18A	2.5	Non-Hazardous	17 05 04	A	TP-A6	0.0-1.0	Non-Hazardous	17 05 04	B-1
BH19	0.5	Non-Hazardous	17 05 04	A	TP-A6	1.0-2.0	Non-Hazardous	17 05 04	A
BH19	2	Non-Hazardous	17 05 04	A	TP-B1	0.0-1.0	Non-Hazardous	17 05 04	A
TP05	0.6-1.1	Non-Hazardous	17 05 04	C	TP-B1	1.0-2.0	Non-Hazardous	17 05 04	B-1
TP05	1.4-2.25	Non-Hazardous	17 05 04	A	TP-B2	0.0-1.0	Non-Hazardous	17 05 04	A
TP06	0.4-1.1	Non-Hazardous	17 05 04	C	TP-B2	1.0-2.0	Non-Hazardous	17 05 04	C
TP-16	0.0-1.0	Non-Hazardous	17 05 04	A	TP-B3	0.0-1.0	Non-Hazardous	17 05 04	A
TP-16	1.0-2.0	Non-Hazardous	17 05 04	A	TP-B3	1.0-2.0	Non-Hazardous	17 05 04	C
TP-17	0.0-1.0	Non-Hazardous	17 05 04	B-1	TP-B4	0.0-1.0	Non-Hazardous	17 05 04	A
TP-17	1.0-2.0	Non-Hazardous	17 05 04	C	TP-B4	1.0-2.0	Non-Hazardous	17 05 04	A
TP-18	0.0-1.0	Non-Hazardous	17 05 04	C-1	TP-B5	0.0-1.0	Non-Hazardous	17 05 04	C-1
TP-18	1.0-2.0	Non-Hazardous	17 05 04	A	TP-B5	1.0-2.0	Non-Hazardous	17 05 04	A
TP-19	0.0-1.0	Non-Hazardous	17 05 04	A	TP-B6	1.0-2.0	Non-Hazardous	17 05 04	C-1
TP-19	1.0-2.0	Non-Hazardous	17 05 04	A	TP-B6	0.0-1.0	Non-Hazardous	17 05 04	C-1

Category	
A	Classified as Non-Hazardous, 17 05 04 meets inert WAC
B-1	Classified as Non-Hazardous, 17 05 04 or 17 09 04 meets inert WAC increased limits
C	Classified as Non-Hazardous, 17 05 04 or 17 09 04 meets non-hazardous WAC
C-1	Classified as Non-Hazardous, 17 05 04 or 17 09 04 meets non-hazardous WAC but contains asbestos <0.1%
D	Classified as Hazardous

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Soils

Arsenic exceeded the S4UL in seven locations (TP-17 (1-2m), TP-18, 22, 25 all 0-1m), TP-A3, A6, TP-B2 and B4 all 0-1m)) but the levels of arsenic in these locations are below the Teagasc range for arsenic in clean Irish Soils (0.5 -122mg/kg). While the levels detected are not considered to be significant these material will be excavated and removed from the site during the site preparatory works to establish formation levels on the site.

Aliphatic and aromatic hydrocarbon levels were exceeded in one sample (TP-A5 (0-1m) location. PAHS exceeded the S4UL in six samples (TP-17 0-1, and 1-2m) TP-18 and 25 (0-1m) TP-B2 and B4 (0-1m). While the exceeding values are marginal the material in these locations will be removed during the site preparatory works and will not therefore present a risk to future site users.

7.2 Groundwater

The ammonium and sulphate in BH-11 and the elevated hydrocarbons and VOCs in MW-2 appear to be localised. Hydrocarbons were not detected in the groundwater elsewhere. The ammonium, chloride potassium and electrical conductivity may be associated with low oxygen-reducing conditions locally associated with the hydrocarbon contamination. As there is no evidence of contamination in the wells down gradient of MW-2. No contamination was detected in the groundwater down hydraulic gradient of MW-2 the impacts here are localised.

7.3 Ground Gas

The site is located in a Low Radon Risk area, where the reference level is 1% - 5%. Ground gas (methane and carbon dioxide) monitoring has established that the levels does not present a risk to the redevelopment and that gas mitigation measures are not required.

7.4 Waste Management

The soils at TP-A5 (0-1m) are classified as hazardous and the appropriate List of Waste (LoW) Code for these samples is 17 09 03* (Soil and Stone containing hazardous substances). The remaining samples are classified as non-hazardous and the appropriate LoW is 17 05 04 (Soil and stone other than those mentioned in 17 05 03*).

7.5 Recommendations

MW-2 is close the proposed basement excavation. If dewatering is required during its construction, monitoring will be required to ensure the hydrocarbon contamination encountered in MW-2 does not enter the excavation area. If it does enter the excavation it should be collected, treated and disposed appropriately.

Made and natural ground excavated for removal from the site should be undertaken in accordance with the dig plans in Appendix 7 and waste classification and LoW assigned in Section 6.

A copy of this report should be provided in full to the relevant waste management facilities to which the subsoils will be consigned to confirm its suitability for acceptance.

Appendix 1

OSI Historical Maps and Photographs



O'Callaghan Moran & Associates,
Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
Email: info@ocallaghantomoran.com

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Title: Aerial Photograph 1995 (Player Wills)

Client: Hines

Legend

■ - Site Location



O'Callaghan Moran & Associates,
Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
Email: info@ocallaghantomoran.com

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Title:

Client:

Aerial Photograph 2000 (Player Wills)

Hines

Legend

 - Site Location



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Model Farm Road, Cork.
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Title:

Aerial Photograph 2005 (Player Wills)

Legend

 - Site Location

Client:

Hines



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Title:

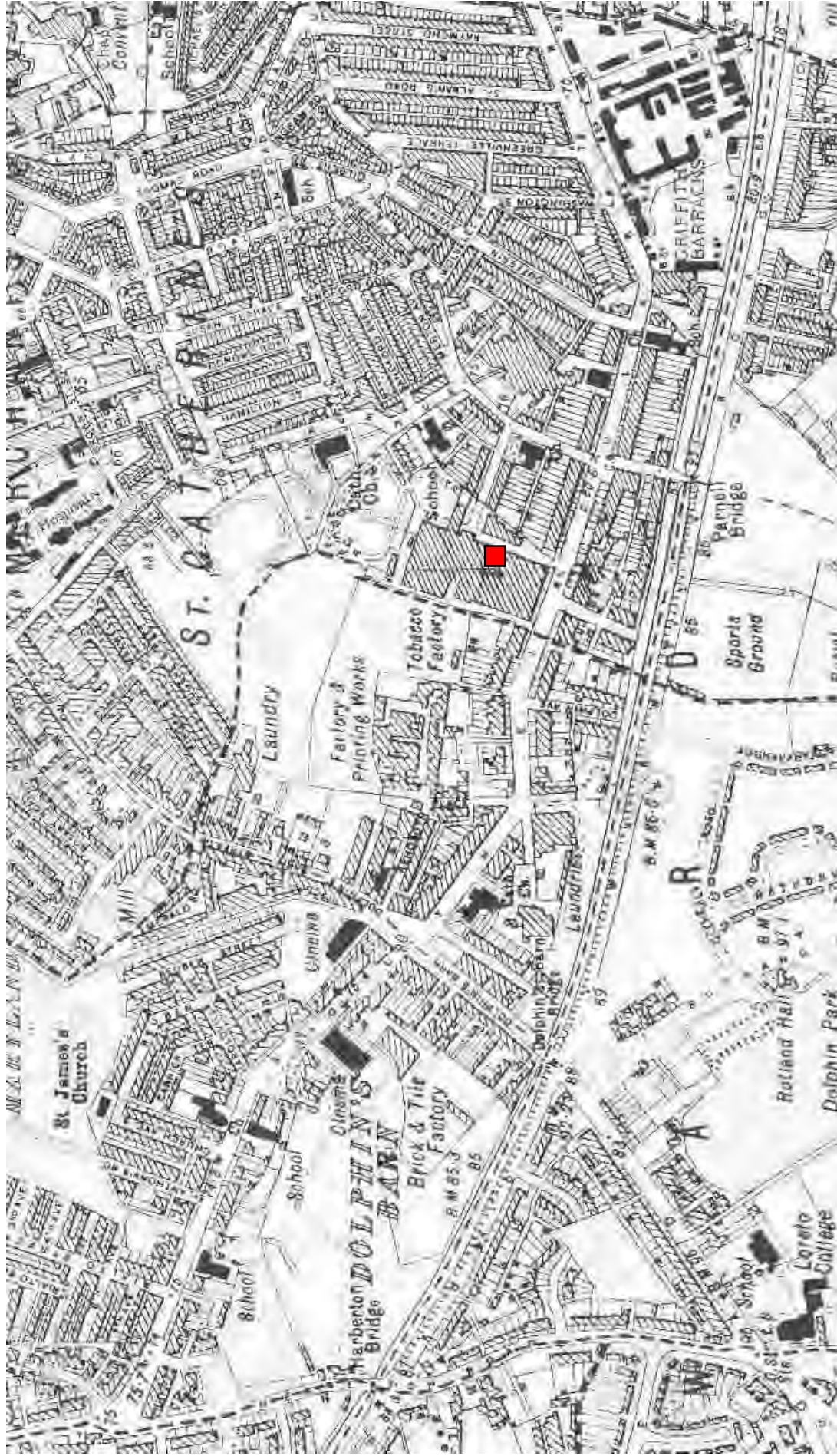
Client:

Historical 6" 1837-1842 (Player Wills)

Hines

Legend

 - Site Location



O'Callaghan Moran & Associates,
Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366

Email: info@ocallaghanmoran.com

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Title:

Historical 6" Cassini (Player Wills)

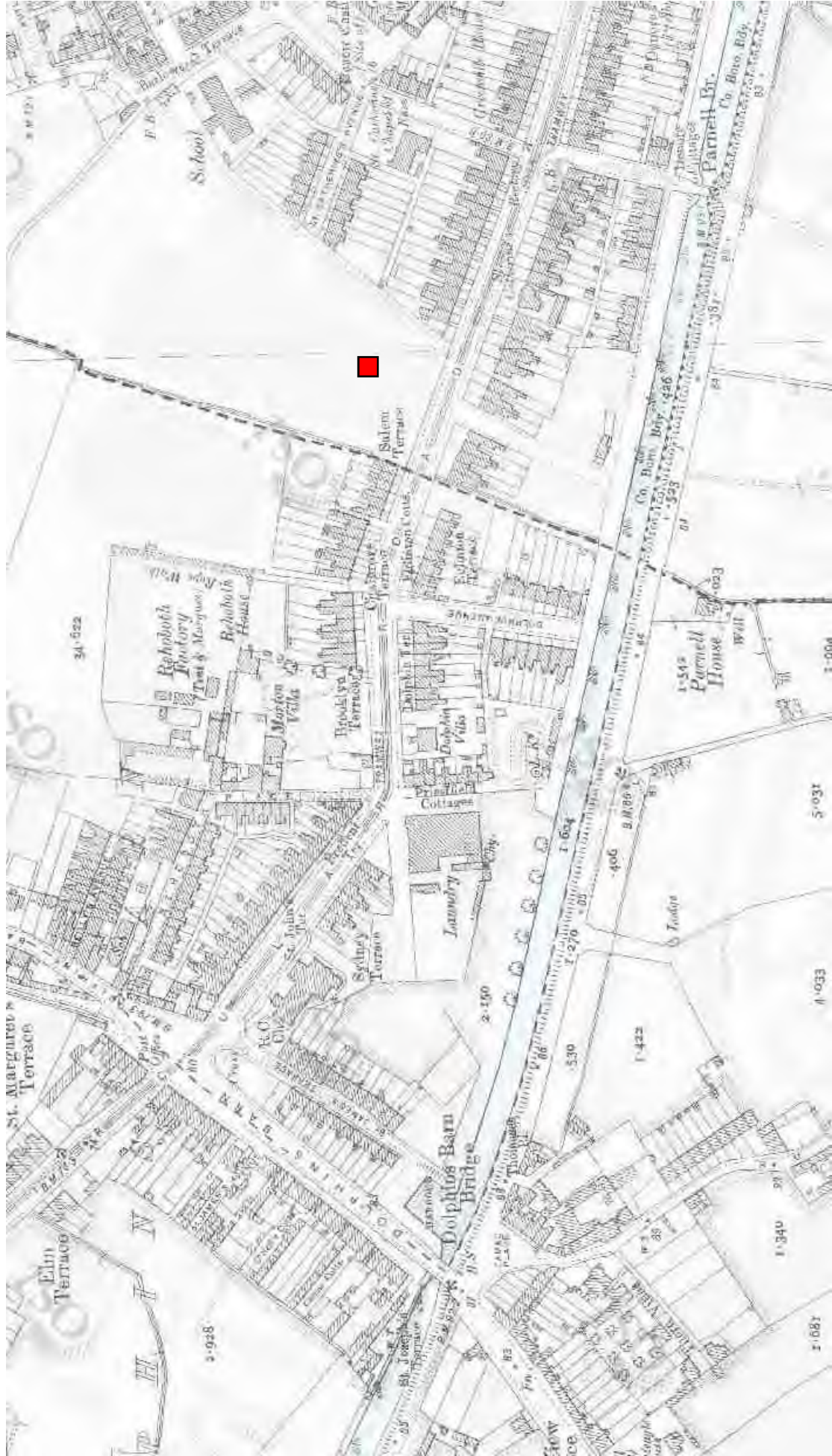
Client:

Hines

Legend



- Site Location



O'Callaghan Moran & Associates,
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Title:

Historical 25" 1888-1913 (Player Wills)

Legend



- Site Location

Client:

Hines

Appendix 2

Borehole and Trial Pit Logs

Trial Pit Number: TP-16

Project: Player Wills

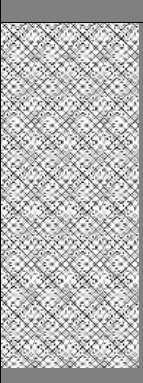
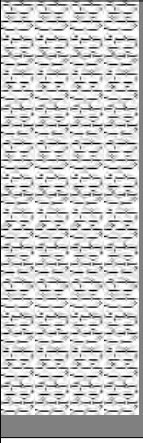
Completion Depth: 3.0m

Client: Hines

Groundwater entry: 1.5m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	TARMACADAM. MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles.		Sampled from 0.0 to 1.0m bGL. Sampled from 1.0 to 2.0m bGL.	0.0 0.0
1				
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.			
3				
4				
5				

Excavation Method: JCB

Geologist: Conor McGrath

Excavation Date: 17/06/2019

Sheet: 1 of 1

Trial Pit Number: TP-17

Project: Player Wills

Completion Depth: 3.6m

Client: Hines

Groundwater entry: 2.4m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	TARMACADAM. MADE GROUND. Greyish brown angular Gravel FILLI with fragments of red brick and many cobbles.		Sampled from 0.0 to 1.0m bGL. Sampled from 1.0 to 2.0m bGL.	0.0 0.0 0.0 0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.			
3				
4				
5				

Excavation Method: JCB

Geologist: Conor McGrath

Excavation Date: 17/06/2019

Sheet: 1 of 1

Trial Pit Number: TP-18

Project: Player Wills

Completion Depth: 3.0m

Client: Hines

Groundwater entry: N/A

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	TARMACADAM. MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles.		Sampled from 0.0 to 1.0m bGL.	0.0 0.0
1				
	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled from 1.0 to 2.0m bGL.	0.0 0.0
2				
3				
4				
5				

Excavation Method: JCB

Geologist: Conor McGrath

Excavation Date: 18/06/2019

Sheet: 1 of 1

Trial Pit Number: TP-19

Project: Player Wills

Completion Depth: 3.0m

Client: Hines

Groundwater entry: 1.7m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	TARMACADAM. MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles.		Sampled from 0.0 to 1.0m bGL.	0.0 0.0 0.0
1				
	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled from 1.0 to 2.0m bGL.	0.0 0.0
2				
3				
4				
5				

Excavation Method: JCB

Geologist: Conor McGrath

Excavation Date: 18/06/2019

Sheet: 1 of 1

Trial Pit Number: TP-20

Project: Player Wills

Completion Depth: 3.3m

Client: Hines

Groundwater entry: N/A

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	TARMACADAM. MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles.		Sampled from 0.0 to 1.0m bGL.	0.0 0.0 0.0
1			Sampled from 1.0 to 2.0m bGL.	0.0 0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled from 2.0 to 3.0m bGL.	0.0 0.0
3				
4				
5				

Excavation Method: JCB

Geologist: Conor McGrath

Excavation Date: 18/06/2019

Sheet: 1 of 1

Trial Pit Number: TP-22

Project: Player Wills

Completion Depth: 3.4m

Client: Hines

Groundwater entry: N/A

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	TARMACADAM. MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles.		Sampled from 0.0 to 1.0m bGL.	0.0 0.0
1				
	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled from 1.0 to 2.0m bGL.	0.0 0.0
2				
3				
4				
5				

Excavation Method: JCB

Geologist: Conor McGrath

Excavation Date: 17/06/2019

Sheet: 1 of 1

Trial Pit Number: TP-23

Project: Player Wills

Completion Depth: 2.8m

Client: Hines

Groundwater entry: N/A

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	TARMACADAM. MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles.		Sampled from 0.0 to 1.0m bGL.	0.0 0.0
1	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled from 1.0 to 2.0m bGL.	0.0 0.0
2			Sampled from 2.0 to 2.8m bGL.	0.0
3				
4				
5				

Excavation Method: JCB

Geologist: Conor McGrath

Excavation Date: 18/06/2019

Sheet: 1 of 1

Trial Pit Number: TP-25

Project: Player Wills

Completion Depth: 2.3m

Client: Hines

Groundwater entry: N/A

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	TARMACADAM. MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles.		Sampled from 0.0 to 1.0m bGL.	0.0 0.0
1				0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled from 1.0 to 2.0m bGL.	0.0
3				
4				
5				

Excavation Method: JCB

Geologist: Conor McGrath

Excavation Date: 17/06/2019

Sheet: 1 of 1

Trial Pit Number: TP-A1

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			0.0
1	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.		Sampled between 0.0 and 1.5 mbGL.	0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled between 1.7 and 2.1 mbGL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 26/09/2019

Sheet: 1 of 1

Trial Pit Number: TP-A2

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			0.0
1	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.		Sampled between 0.0 and 1.5 mbGL.	0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled between 1.7 and 2.1 mbGL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 26/09/2019

Sheet: 1 of 1

Trial Pit Number: TP-A3

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			0.0
1	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.		Sampled between 0.0 and 1.5 mbGL.	0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled between 1.7 and 2.1 mbGL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 26/09/2019

Sheet: 1 of 1

Trial Pit Number: TP-A4

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			0.0
1	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.		Sampled between 0.0 and 1.5 mbGL.	0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled between 1.7 and 2.1 mbGL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 26/09/2019

Sheet: 1 of 1

Trial Pit Number: TP-A5

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			0.0
1	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.		Sampled between 0.0 and 1.5 mbGL.	0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled between 1.7 and 2.1 mbGL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 26/09/2019

Sheet: 1 of 1

Trial Pit Number: TP-A6

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			0.0
1	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.		Sampled between 0.0 and 1.5 mbGL.	0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled between 1.7 and 2.1 mbGL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 26/09/2019

Sheet: 1 of 1

Trial Pit Number: TP-B1

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			
	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.			0.0
1			Sampled 0.4 to 1.0 mb GL.	0.0
	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.			0.0
2			Sampled between 1.7 and 2.1 mbGL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 21/10/2019

Sheet: 1 of 1

Trial Pit Number: TP-B2

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			
	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.			0.0
1			Sampled 0.4 to 1.0 mb GL.	0.0
				0.0
				0.0
				0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled between 1.7 and 2.1 mbGL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 21/10/2019

Sheet: 1 of 1

Trial Pit Number: TP-B3

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			
	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.			0.0
1			Sampled 0.4 to 1.0 mb GL.	0.0
				0.0
				0.0
				0.0
2	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled between 1.7 and 2.1 mbGL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 21/10/2019

Sheet: 1 of 1

Trial Pit Number: TP-B4

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			
	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.			0.0
1			Sampled 0.4 to 1.0 mb GL.	0.0
	CLAY. Light brown/brown slightly sandy gravelly silty CLAY.		Sampled between 1.7 and 2.1 mbGL.	0.0
2				
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 21/10/2019

Sheet: 1 of 1

Trial Pit Number: TP-B5

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			
	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.			0.0
1			Sampled 0.4 to 1.0 mb GL.	0.0
				0.0
2			Sampled 1.0 to 2.0 mb GL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 21/10/2019

Sheet: 1 of 1

Trial Pit Number: TP-B6

Project: Player Wills

Completion Depth: 2.1m

Client: Hines

Groundwater entry: 1.9m

Location: Dublin

SWL (m): N/A

Depth (m)	Lithology Description	Lithology	Soil Sample Depth (m)	PID Readings (ppm)
0	Ground Surface			
	CONCRETE			
	MADE GROUND. Greyish brown angular Gravel FILL with fragments of red brick and many cobbles. Non natural materials comprise <2% of the soil matrix.			0.0
1			Sampled 0.4 to 1.0 mb GL.	0.0
				0.0
2			Sampled 1.0 to 2.0 mb GL.	0.0
3				
4				
5				

Excavation Method: Tracked Excavator

Geologist: Conor McGrath

Excavation Date: 21/10/2019

Sheet: 1 of 1

Appendix 3

Soil and Groundwater Sampling Protocols



STANDARD OPERATING PROCEDURE

SOIL SAMPLING

The soil sampling technique described below will be followed to ensure that soil samples are representative of the environment which they are intended to characterise.

1.0 SAMPLING

- (A) Locate the soil sampling station in accordance with the workplan which will specify the number and type of samples to be taken. Place a wooden stake into the ground one metre from the sample location and record sample location on the stake.
- (B) Record the location in the field logbook and, if possible, photograph the location.
- (C) Collect soil samples from the depth specified in the workplan and record the depth in the field notebook. Describe the colour and texture of each sample and record in notebook.
- (D) Wear appropriate level of protection when taking samples (gloves, safety glasses, hard hat etc.) as specified in the workplan. Collect soil samples as specified in the workplan using decontaminated stainless steel trowel, soil corer, or similar device. Collect discrete soil samples from each station.
- (E) If required by the workplan, composite discrete soil samples by placing equal volumes of soil into the container and mixing thoroughly to a homogenous mixture. Samples may be hand picked, if necessary, to remove larger materials, such as leaves, sticks, gravel, rocks etc., if specified in the workplan. Record in notebook the nature of any materials removed from soil samples.
- (F) Deposit each soil sampled into a (clean, pre-washed) container. At the time of collection, the sample bottle will be filled to the top with soil sample.
- (G) Fill out labels with waterproof ink and attach to the sample container. The following information will be recorded on each sample label: -
 - Client/Site Name
 - Date Collected
 - Time Collected
 - Analysis
 - Preservative
 - Sample Identification Number

- (H) Decontaminate sampling equipment as described below unless otherwise specified in the site workplan. When using stainless steel sampling equipment: -
- wash with non-phosphate detergent in potable water,
 - rinse sequentially in potable water, methanol, acetone, methanol and D1 water and;
 - allow to air dry in a containment free area.
- (I) Wrap the decontaminated sampling equipment in aluminium foil which has been decontaminated in accordance with Section H.

2.0 FIELD DOCUMENTATION

Record sample information in the field notebook. Provide a complete description of the sample location, and a photograph, if necessary. Describe the soil appearance, especially if the presence of oil or an odour is noted. Document the sample bottle lot numbers in the field notebook. Record weather conditions at the time of sampling. The Field Team Leader will initial the logbook entries for correctness.

3.0 FIELD QA/QC SAMPLES

See the separate SOP on Field QA/QC samples for appropriateness and preparation of D1 Water Field Blanks, Cross-contamination Field Blanks, Trip Blanks and Field Duplicate Samples.

4.0 PACKAGING AND TRANSPORT

Check to be sure that all necessary information is on the sample container label. Complete the chain-of custody form. Package, label and transport the samples to the testing laboratory in accordance with requirements for packing, shipping and labelling environmental samples.

END.



STANDARD OPERATING PROCEDURE

GROUNDWATER SAMPLING

The primary objective of groundwater sampling is to establish groundwater quality and evaluate whether the potential contaminant sources at a site have impacted the groundwater in the underlying aquifer. The additional objective is to measure hydraulic gradient, or slope, of the water table to evaluate the direction of groundwater flow.

The purpose of this procedure is to ensure that representative samples of groundwater are collected and documented using consistent methods to ensure sample integrity.

1.0 SAMPLING PROCEDURES

1.1 Well Operating and Purging Procedures

All groundwater sampling will be conducted after the installed and developed wells have been allowed to equilibrate for at least 2 to 3 days. A Field Data Sheet for Well Sampling will be completed for each well.

Groundwater sampling teams will use the following procedure for approaching, opening, purging and sampling all wells, unless directed otherwise by a site specific workplan.

- 1) Prior to placing any equipment into the well, decontaminate the sampling equipment according to standard decontamination protocol.
- 2) Ensure you have a working FID/PID, a well key, and a depth-to-water meter.
- 3) Unlock and open the well cap just enough to insert the probe of the PID/FID. Take and record a reading. A decision to upgrade PPE may be necessary based on the FID/PID readings in the breathing zone.
- 4) Where practical, the surface water column will be visually examined for the presence of hydrocarbons, if present or suspected, the thickness of the hydrocarbon layer will be measured using an oil/water interface probe prior to taking the depth-to-water measurement.
- 5) Insert the water level probe into the well and measure and record the static water level to the nearest 0.01 m with respect to the established survey point on top of the well casing.

- 6) Decontaminate the water level probe with DDI water (Do not rinse with any solvents unless product was encountered).
- 7) Calculate and record the minimum volume of water to be purged according to the following conversion factors: -

1 well volume	=	water column in metres x litres/linear metre
50mm casing	=	2.0 LPM
100mm casing	=	8.1 LPM
150mm casing	=	18.2 LPM
200mm casing	=	32.4 LPM

- 8) Purge the well of at least 3 casing volumes by pumping or bailing with a decontaminated submersible pump or PVC bailer equipped with a bottom filling check valve (if the purge volume is low, generally less than 100 litres, the sampling team might find it more efficient to purge with a bailer than a pump). Use a graduated bucket to track the amount of water removed from the well. Periodically determine the pH, temperature and specific conductance of the purged water. Continue purging until the well has been completely evacuated or until the pH and specific conductance measurements have stabilised for at least one well volume. Wells that become dewatered before producing three casing volumes will be sampled as soon as practical once they recover sufficiently.
- 9) Dispose of purge water collected in the graduated bucket by pouring onto the ground at a distance of 50 to 60 metres from the vicinity of the well. If the water is known or suspected to be significantly contaminated, it may be necessary to store the purge water in a secure container, such as a drum, pending proper disposal.
- 10) Be aware and record any unusual occurrence during purging such as cascading (a shallow water entry zone that trickles into the borehole).

1.2 Field Parameter Measurement

Measurements of field parameters of pH, temperature and electrical conductivity are collected and organic vapour screening is conducted while the well is purged. To facilitate the collection of basic field parameters, the field team needs to: -

- Purge three well volumes of water from the well and measure field parameters for each well volume removed.
- Collection of water samples should take place after stabilisation of the following parameters: -
 - Temperature +/- 1°C
 - pH (meter or paper) +/- 0.2 units
 - Specific conductivity +/- 5%

- If the aforementioned parameters do not stabilise within three purge volumes, the well will be purged up to a maximum of six borehole volumes unless two consecutive sets of stabilised parameters are obtained.
- Note any observations in the field logbook.

1.3 Collection of Water Samples

All samples for chemical analysis will be placed in laboratory prepared bottles. The types of sample containers and preservative required for each type of analysis are described in the workplan. If required, preservatives will be placed in the sample containers prior to collecting the samples.

The following procedure will be used to sample a well: -

- 1) After the well has been purged and allowed to recover, sample the well using a properly decontaminated or dedicated disposable bailer. Gently lower the bailer into the water column. Allow the bailer to sink and fill with a minimum of surface disturbance.
- 2) Slowly raise the bailer out of the well. Do not allow the bailer line to contact the ground, either by coiling it on a clean plastic sheet or by looping it from arm to arm as the line is extracted from the well.
- 3) Samples will be collected for VOCs analysis immediately after purging is complete and before other samples are collected. Pour the samples slowly into the laboratory prepared 40 ml glass vial. Overfill each vial slightly to eliminate air bubbles, a convex meniscus should be present at the top of the vial. Ensure that the Teflon liner of the septum cap is facing inward and that no bubbles are entrapped. After capping securely, turn bottle upside-down, tap it against your other hand, and observe sample water for bubbles. If bubbles are observed, remove the cap, overfill the vial and reseal. Repeat this step for each vial until the samples with no bubbles are obtained.
- 4) Place a label on the container and enter the following information: -

Client/Site Name
Date Collected
Time Collected
Analysis
Preservative
Sample Identification Number

- 5) Record pertinent information in the field logbook and on the Field Data Sheet for Well Sampling. Complete chain-of-custody form.
- 6) Place custody seals on the container caps. As soon as possible, place sample containers in a cooler with ice packs and maintain at 4°C until extraction. Surround the bottles with appropriate packaging.

- 7) Obtain the semi-volatile compound/pesticides/PCBs sample(s) by transferring the water to a laboratory prepared 1000 ml amber glass bottle with Teflon-lined cap. Fill the bottle to the bottom of the neck and follow steps 4, 5 and 6 above.
- 8) Dissolved metals (if necessary) requires the team to filter the sample water through a .45 micron filter. The water is collected in a 1 litre, unpreserved, plastic or glass bottle with HNO₃ preservative. Filtering must be done within 15 minutes of sample collection.
- 9) Obtain the total metals sample by directly transferring the water from the bailer into a laboratory prepared 1000 ml plastic or glass bottle with HNO₃ preservative.
- 10) Be sure the pH of the metals sampled is less than 2 by pouring off an aliquot in a clean jar and testing for pH using litmus paper. Dispose of this water and rinse the jar.
- 11) Collect and prepare Field QA/QC samples in accordance with separate SOP.
- 12) Be sure to record all data required on the Field Data Sheet or Well Sampling and appropriate entries into the field logbook.
- 13) Secure the well cap and replace the locking cover.
- 14) Decontaminate all sampling equipment according to procedure.
- 15) Decontaminate submersible pumps as follows: -
 - Scrub pump and cord in a tub of appropriate detergent and potable water
 - Pump at least 80 litres of soapy water through pump
 - Rinse with potable water
 - Pump at least 80 litres of rinse water through the pump
 - Rinse with DI water before lowering pump into the next well.

END.

Appendix 4

Soil Laboratory Reports



Final Report

Report No.:	19-20715-1		
Initial Date of Issue:	27-Jun-2019		
Client	O Callaghan Moran & Associates		
Client Address:	15 Melbourne Business Park Model Farm Road Co. Cork IRELAND		
Contact(s):	Conor McGrath		
Project	Player Wills		
Quotation No.:	Q18-15064	Date Received:	20-Jun-2019
Order No.:		Date Instructed:	20-Jun-2019
No. of Samples:	18		
Turnaround (Wkdays):	5	Results Due:	26-Jun-2019
Date Approved:	26-Jun-2019		
Approved By:			

Details: Ken Scally, Forensics Director

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Results - Leachate

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
Quotation No.: Q18-15064		Chemtest Sample ID.:		845730	845732	845731	845733	845734	845735	845736	845737	845738
		Sample Location:		TP-17	TP-22	TP-16	TP-18	TP-23	TP-19	TP-20	TP-20	TP-23
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
		Bottom Depth (m):		2.00	2.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00
		Date Sampled:		17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019
Determinand		Accred.	SOP	Type	Units	LOD						
Ammonium		U	1220	10:1	mg/l	0.050	0.23	0.70	0.16	0.28	0.19	0.17
Ammonium		N	1220	10:1	mg/kg	0.10	2.3	7.0	1.6	2.8	1.9	1.7

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:			19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
Quotation No.: Q18-15064		Chemtest Sample ID.:			845721	845722	845723	845724	845725	845726	845727	845728
		Sample Location:			TP-25	TP-17	TP-16	TP-22	TP-18	TP-23	TP-19	TP-20
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Bottom Depth (m):			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Date Sampled:			17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
ACM Type	U	2192		N/A	Fibres/Clumps	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	Chrysotile	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	Stereo Microscopy	-	-	-	-	-	-	-
Asbestos by Gravimetry	U	2192	%	0.001	0.001							
Total Asbestos	N	2192	%	0.001	0.001							
Moisture	N	2030	%	0.020	16	5.9	22	23	17	8.2	20	12
pH	U	2010		N/A	8.1	8.8	8.3	8.1	8.2	8.5	8.3	8.5
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	1.4	< 0.40	0.94	4.6	2.0	< 0.40	0.58	0.53
Sulphur (Elemental)	U	2180	mg/kg	1.0	16	4.7	8.0	45	420	7.1	9.7	58
Cyanide (Total)	U	2300	mg/kg	0.50	0.60	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	8.4	1.2	6.4	6.9	28	6.0	14	11
Sulphate (Total)	U	2430	%	0.010	0.62	0.11	0.16	0.35	0.40	0.073	0.13	0.087
Arsenic	U	2450	mg/kg	1.0	44	24	42	50	21	27	22	20
Barium	U	2450	mg/kg	10	310	42	110	250	78	120	160	80
Cadmium	U	2450	mg/kg	0.10	1.1	0.62	1.5	1.1	0.87	0.67	0.48	1.7
Chromium	U	2450	mg/kg	1.0	29	37	20	25	17	24	27	11
Molybdenum	U	2450	mg/kg	2.0	6.3	< 2.0	3.6	7.7	5.1	< 2.0	6.1	3.5
Antimony	N	2450	mg/kg	2.0	4.7	< 2.0	2.0	5.5	2.1	< 2.0	2.3	< 2.0
Copper	U	2450	mg/kg	0.50	120	57	120	200	58	76	130	27
Mercury	U	2450	mg/kg	0.10	1.6	< 0.10	0.61	2.9	0.54	0.37	0.43	< 0.10
Nickel	U	2450	mg/kg	0.50	65	28	41	71	37	35	100	37
Lead	U	2450	mg/kg	0.50	530	22	300	620	150	400	210	22
Selenium	U	2450	mg/kg	0.20	0.89	< 0.20	1.0	1.6	1.1	< 0.20	0.31	0.41
Zinc	U	2450	mg/kg	0.50	270	63	120	270	89	140	140	58
Chromium (Trivalent)	N	2490	mg/kg	1.0	29	37	20	25	17	24	27	11
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	12	< 0.40	5.9	21	6.6	2.4	24	1.0
Total Organic Carbon	U	2625	%	0.20	6.8	< 0.20	3.4	12	3.8	1.4	14	0.59
Mineral Oil	N	2670	mg/kg	10	59	< 10	23	36	< 10	22	13	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	3.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	7.3	< 1.0	3.0	3.3	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:			19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
Quotation No.: Q18-15064		Chemtest Sample ID.:			845721	845722	845723	845724	845725	845726	845727	845728
		Sample Location:			TP-25	TP-17	TP-16	TP-22	TP-18	TP-23	TP-19	TP-20
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
		Bottom Depth (m):			1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
		Date Sampled:			17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	50	24	< 1.0	26	44	6.4	24	16
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	9.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	70	30	< 5.0	29	48	6.4	24	16
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	5.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	26	11	< 1.0	4.5	10	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	160	110	< 1.0	150	64	9.5	120	44
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	3.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	200	120	< 5.0	160	75	9.5	120	44
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	270	150	< 10	190	120	16	150	60
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	0.51	0.64	< 0.10	< 0.10	1.1	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	0.16	0.12	< 0.10	< 0.10	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	0.72	1.2	< 0.10	< 0.10	1.6	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	0.45	0.77	< 0.10	< 0.10	1.0	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	5.0	7.4	< 0.10	1.3	12	< 0.10	0.85	< 0.10
Anthracene	U	2800	mg/kg	0.10	1.0	1.2	< 0.10	0.13	1.8	< 0.10	0.11	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	6.9	8.1	< 0.10	0.92	14	< 0.10	1.2	< 0.10
Pyrene	U	2800	mg/kg	0.10	6.0	7.0	< 0.10	0.82	13	< 0.10	1.2	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	3.1	3.7	< 0.10	0.33	6.5	< 0.10	0.50	< 0.10
Chrysene	U	2800	mg/kg	0.10	3.7	4.1	< 0.10	0.45	7.9	< 0.10	0.51	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	4.0	4.3	< 0.10	0.50	7.7	< 0.10	0.55	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	1.5	1.7	< 0.10	0.13	3.3	< 0.10	0.19	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	3.2	3.3	< 0.10	0.33	6.4	< 0.10	0.41	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	1.8	1.8	< 0.10	0.19	3.6	< 0.10	0.18	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.36	0.35	< 0.10	< 0.10	0.72	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	2.1	2.0	< 0.10	0.30	3.6	< 0.10	0.24	< 0.10
Coronene	N	2800	mg/kg	0.10	6.0	3.4	< 0.10	0.30	9.9	< 0.10	0.14	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	47	51	< 2.0	5.7	94	< 2.0	6.1	< 2.0

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
Quotation No.: Q18-15064		Chemtest Sample ID.:		845721	845722	845723	845724	845725	845726	845727	845728	845729
		Sample Location:		TP-25	TP-17	TP-16	TP-22	TP-18	TP-23	TP-19	TP-20	TP-25
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
		Bottom Depth (m):		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
		Date Sampled:		17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019
		Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	2.6	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:			19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
Quotation No.: Q18-15064		Chemtest Sample ID.:			845730	845731	845732	845733	845734	845735	845736	845737
		Sample Location:			TP-17	TP-16	TP-22	TP-18	TP-23	TP-19	TP-20	TP-23
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
		Bottom Depth (m):			2.00	2.00	2.00	2.00	2.00	2.00	2.00	3.00
		Date Sampled:			17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	U	2192	%	0.001								
Total Asbestos	N	2192	%	0.001								
Moisture	N	2030	%	0.020	20	13	15	17	15	14	12	11
pH	U	2010		N/A	8.2	8.5	8.7	8.4	8.5	8.4	8.5	8.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	2.5	< 0.40	< 0.40	0.55	< 0.40	< 0.40	< 0.40	< 0.40
Sulphur (Elemental)	U	2180	mg/kg	1.0	46	1.9	1.1	2.5	1.6	1.4	< 1.0	13
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	8.5	14	12	9.3	7.1	11	9.0	8.4
Sulphate (Total)	U	2430	%	0.010	0.27	0.034	0.078	0.025	0.043	0.026	0.027	0.060
Arsenic	U	2450	mg/kg	1.0	48	22	19	20	23	21	22	14
Barium	U	2450	mg/kg	10	310	80	37	120	61	59	61	78
Cadmium	U	2450	mg/kg	0.10	1.1	2.2	2.1	2.0	2.2	2.6	2.0	1.7
Chromium	U	2450	mg/kg	1.0	28	17	13	18	13	15	15	11
Molybdenum	U	2450	mg/kg	2.0	6.5	4.9	4.1	6.1	4.7	5.5	4.8	3.8
Antimony	N	2450	mg/kg	2.0	5.0	2.2	< 2.0	< 2.0	< 2.0	6.1	4.9	3.2
Copper	U	2450	mg/kg	0.50	200	38	26	31	36	37	34	24
Mercury	U	2450	mg/kg	0.10	3.7	0.12	< 0.10	< 0.10	0.12	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	68	56	39	53	50	58	47	31
Lead	U	2450	mg/kg	0.50	680	49	18	21	33	18	25	21
Selenium	U	2450	mg/kg	0.20	1.3	0.95	3.6	0.64	0.53	0.41	0.88	0.81
Zinc	U	2450	mg/kg	0.50	240	94	67	82	83	83	66	56
Chromium (Trivalent)	N	2490	mg/kg	1.0	28	17	13	18	13	15	15	11
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	15	0.90	1.7	0.93	1.3	0.98	1.1	1.3
Total Organic Carbon	U	2625	%	0.20	8.9	0.52	0.98	0.54	0.75	0.57	0.64	0.74
Mineral Oil	N	2670	mg/kg	10	24	< 10	< 10	< 10	< 10	< 10	< 10	51
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	3.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
Quotation No.: Q18-15064		Chemtest Sample ID.:		845730	845732	845733	845734	845735	845736	845737	845738	TP-23	TP-23
		Sample Location:		TP-17	TP-22	TP-18	TP-23	TP-19	TP-20	TP-20	TP-23	SOIL	SOIL
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
		Bottom Depth (m):		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00
		Date Sampled:		17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019
		Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	27	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	58
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	31	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	58
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	58	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	20
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	68	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	20
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	98	< 10	< 10	< 10	< 10	< 10	< 10	< 10	78
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	0.68	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	0.51	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	1.6	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	0.95	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10	2.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	16	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10	14	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	7.3	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	9.3	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	8.9	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	3.9	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	7.2	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	4.3	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz[a,h]Anthracene	N	2800	mg/kg	0.10	0.76	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	4.3	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Coronene	N	2800	mg/kg	0.10	4.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	97	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715	19-20715
Quotation No.: Q18-15064		Chemtest Sample ID.:		845730	845731	845732	845733	845734	845735	845736	845737	845738
		Sample Location:		TP-17	TP-16	TP-22	TP-18	TP-23	TP-19	TP-20	TP-20	TP-23
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
		Bottom Depth (m):		2.00	2.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00
		Date Sampled:		17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019	17-Jun-2019
		Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD								
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715				Landfill Waste Acceptance Criteria Limits													
Chemtest Sample ID: 845721																	
Sample Ref:																	
Sample ID:																	
Sample Location: TP-25																	
Top Depth(m): 0.00				Inert Waste Landfill				Stable, Non- reactive hazardous waste in non- hazardous Landfill				Hazardous Waste Landfill					
Bottom Depth(m): 1.00																	
Sampling Date: 17-Jun-2019																	
Determinand				SOP		Accred.		Units									
Total Organic Carbon				2625		U		%		6.8							
Loss On Ignition				2610		U		%		9.4							
Total BTEX				2760		U		mg/kg		<0.010							
Total PCBs (7 Congeners)				2815		U		mg/kg		<0.10							
TPH Total WAC (Mineral Oil)				2670		U		mg/kg		270							
Total (Of 17) PAH's				2800		N		mg/kg		47							
pH				2010		U				8.1							
Acid Neutralisation Capacity				2015		N		mol/kg		0.050							
Eluate Analysis								10:1 Eluate mg/l		10:1 Eluate mg/kg		Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					
Arsenic				1450		U		0.0042		<0.050		0.5		2		25	
Barium				1450		U		0.015		<0.50		20		100		300	
Cadmium				1450		U		<0.00010		<0.010		0.04		1		5	
Chromium				1450		U		<0.0010		<0.050		0.5		10		70	
Copper				1450		U		<0.0010		<0.050		2		50		100	
Mercury				1450		U		<0.00050		<0.0050		0.01		0.2		2	
Molybdenum				1450		U		0.011		0.11		0.5		10		30	
Nickel				1450		U		<0.0010		<0.050		0.4		10		40	
Lead				1450		U		<0.0010		<0.010		0.5		10		50	
Antimony				1450		U		0.0037		0.037		0.06		0.7		5	
Selenium				1450		U		0.0015		0.015		0.1		0.5		7	
Zinc				1450		U		0.0030		<0.50		4		50		200	
Chloride				1220		U		1.2		12		800		15000		25000	
Fluoride				1220		U		0.59		5.9		10		150		500	
Sulphate				1220		U		140		1400		1000		20000		50000	
Total Dissolved Solids				1020		N		260		2600		4000		60000		100000	
Phenol Index				1920		U		<0.030		<0.30		1		-		-	
Dissolved Organic Carbon				1610		U		7.8		78		500		800		1000	

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	16

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715				Landfill Waste Acceptance Criteria Limits																															
Chemtest Sample ID: 845722																																			
Sample Ref:																																			
Sample ID:																																			
Sample Location: TP-17																																			
Top Depth(m): 0.00				Inert Waste Landfill				Stable, Non-reactive hazardous waste in non-hazardous Landfill				Hazardous Waste Landfill																							
Bottom Depth(m): 1.00																																			
Sampling Date: 17-Jun-2019																																			
Determinand																																			
SOP																																			
Total Organic Carbon				2625				U				Accred.				Units																			
Loss On Ignition				2610				U				U				%																			
Total BTEX				2760				U				U				mg/kg																			
Total PCBs (7 Congeners)				2815				U				U				mg/kg																			
TPH Total WAC (Mineral Oil)				2670				U				U				mg/kg																			
Total (Of 17) PAH's				2800				N				N				mg/kg																			
pH				2010				U				U				8.2																			
Acid Neutralisation Capacity				2015				N				N				mol/kg																			
Eluate Analysis												10:1 Eluate mg/l				10:1 Eluate mg/kg				Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg															
Arsenic				1450				U				U				0.0052				0.052				0.5				2				25			
Barium				1450				U				U				< 0.011				< 0.50				20				100				300			
Cadmium				1450				U				U				< 0.00010				< 0.010				0.04				1				5			
Chromium				1450				U				U				< 0.0010				< 0.050				0.5				10				70			
Copper				1450				U				U				< 0.0010				< 0.050				2				50				100			
Mercury				1450				U				U				< 0.00050				< 0.0050				0.01				0.2				2			
Molybdenum				1450				U				U				0.011				0.11				0.5				10				30			
Nickel				1450				U				U				< 0.0010				< 0.050				0.4				10				40			
Lead				1450				U				U				< 0.0010				< 0.010				0.5				10				50			
Antimony				1450				U				U				0.0046				0.046				0.06				0.7				5			
Selenium				1450				U				U				0.0015				0.015				0.1				0.5				7			
Zinc				1450				U				U				< 0.0010				< 0.50				4				50				200			
Chloride				1220				U				U				1.1				11				800				15000				25000			
Fluoride				1220				U				U				0.21				2.1				10				150				500			
Sulphate				1220				U				U				18				180				1000				20000				50000			
Total Dissolved Solids				1020				N				N				110				1100				4000				60000				100000			
Phenol Index				1920				U				U				< 0.030				< 0.30				1				-				-			
Dissolved Organic Carbon				1610				U				U				9.0				90				500				800				1000			

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	10

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715					Landfill Waste Acceptance Criteria Limits			
Chemtest Sample ID: 845723					Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample Ref:								
Sample ID: TP-16								
Sample Location: 0.00								
Top Depth(m): Bottom Depth(m): 1.00								
Sampling Date: 17-Jun-2019								
Determinand	SOP	Accred.	Units					
Total Organic Carbon	2625	U	%		< 0.20	3	5	6
Loss On Ignition	2610	U	%		1.5	--	--	10
Total BTEX	2760	U	mg/kg		< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg		< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg		< 1.0	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg		< 2.0	100	--	--
pH	2010	U			8.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg		0.047	--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	0.0051		0.051	0.5	2	25
Barium	1450	U	0.0039		< 0.50	20	100	300
Cadmium	1450	U	< 0.00010		< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010		< 0.050	0.5	10	70
Copper	1450	U	< 0.0010		< 0.050	2	50	100
Mercury	1450	U	< 0.00050		< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0023		< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010		< 0.050	0.4	10	40
Lead	1450	U	< 0.0010		< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010		< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010		< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010		< 0.50	4	50	200
Chloride	1220	U	< 1.0		< 10	800	15000	25000
Fluoride	1220	U	0.13		1.3	10	150	500
Sulphate	1220	U	3.1		31	1000	20000	50000
Total Dissolved Solids	1020	N	48		470	4000	60000	100000
Phenol Index	1920	U	< 0.030		< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.9		69	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	5.9

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715						Landfill Waste Acceptance Criteria Limits			
Chemtest Sample ID: 845724						Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample Ref:									
Sample ID:									
Sample Location:									
Top Depth(m): 0.00					10:1 Eluate mg/kg	10:1 Eluate mg/l	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	To evaluate	To evaluate
Bottom Depth(m): 1.00									
Sampling Date: 17-Jun-2019									
SOP									
Accred.									
Units					10:1 Eluate mg/kg	10:1 Eluate mg/l	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	To evaluate	To evaluate
Total Organic Carbon									
Loss On Ignition									
Total BTEX									
Total PCBs (7 Congeners)									
TPH Total WAC (Mineral Oil)					10:1 Eluate mg/kg	10:1 Eluate mg/l	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	To evaluate	To evaluate
Total (Of 17) PAH's									
pH									
Acid Neutralisation Capacity									
Eluate Analysis									
Arsenic					0.091	0.0091	0.5	2	25
Barium					< 0.50	0.0038	20	100	300
Cadmium					< 0.010	< 0.00010	0.04	1	5
Chromium					< 0.050	< 0.0010	0.5	10	70
Copper					< 0.050	< 0.0010	2	50	100
Mercury					< 0.0050	< 0.00050	0.01	0.2	2
Molybdenum					0.078	0.0078	0.5	10	30
Nickel					< 0.050	< 0.0010	0.4	10	40
Lead					< 0.010	< 0.0010	0.5	10	50
Antimony					0.016	0.0016	0.06	0.7	5
Selenium					< 0.010	< 0.0010	0.1	0.5	7
Zinc					< 0.50	< 0.0010	4	50	200
Chloride					< 10	< 1.0	800	15000	25000
Fluoride					3.4	0.34	10	150	500
Sulphate					60	6.0	1000	20000	50000
Total Dissolved Solids					910	91	4000	60000	100000
Phenol Index					< 0.30	< 0.030	1	-	-
Dissolved Organic Carbon					82	8.2	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	22

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715				Landfill Waste Acceptance Criteria Limits							
Chemtest Sample ID: 845725											
Sample Ref:											
Sample ID:											
Sample Location: TP-18											
Top Depth(m): 0.00				Inert Waste Landfill							
Bottom Depth(m): 1.00											
Sampling Date: 17-Jun-2019											
				Stable, Non-reactive hazardous waste in non-hazardous Landfill				Hazardous Waste Landfill			

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	23

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715 Chemtest Sample ID: 845726 Sample Ref: Sample ID: TP-23 Sample Location: 0.00 Top Depth(m): 1.00 Bottom Depth(m): 17-Jun-2019 Sampling Date:					Landfill Waste Acceptance Criteria Limits		
Determinand	SOP	Accred.	Units		Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon	2625	U	%		3	5	6
Loss On Ignition	2610	U	%		--	--	10
Total BTEX	2760	U	mg/kg		6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg		1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg		500	--	--
Total (Of 17) PAH's	2800	N	mg/kg		100	--	--
pH	2010	U			--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg		--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	0.0051		0.5	2	25
Barium	1450	U	0.0063		20	100	300
Cadmium	1450	U	< 0.00010		0.04	1	5
Chromium	1450	U	< 0.0010		0.5	10	70
Copper	1450	U	< 0.0010		2	50	100
Mercury	1450	U	< 0.00050		0.01	0.2	2
Molybdenum	1450	U	0.032		0.5	10	30
Nickel	1450	U	< 0.0010		0.4	10	40
Lead	1450	U	< 0.0010		0.5	10	50
Antimony	1450	U	0.0033		0.06	0.7	5
Selenium	1450	U	0.0020		0.1	0.5	7
Zinc	1450	U	< 0.0010		4	50	200
Chloride	1220	U	1.5		800	15000	25000
Fluoride	1220	U	0.23		10	150	500
Sulphate	1220	U	32		1000	20000	50000
Total Dissolved Solids	1020	N	130		4000	60000	100000
Phenol Index	1920	U	< 0.030		1	-	-
Dissolved Organic Carbon	1610	U	11		500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	17

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715				Landfill Waste Acceptance Criteria Limits																			
Chemtest Sample ID: 845727																							
Sample Ref:																							
Sample ID:																							
Sample Location: TP-19																							
Top Depth(m): 0.00				Inert Waste Landfill				Stable, Non- reactive hazardous waste in non- hazardous Landfill				Hazardous Waste Landfill											
Bottom Depth(m): 1.00																							
Sampling Date: 17-Jun-2019																							
Determinand																							
SOP																							
Accred.				Units				10:1 Eluate mg/kg				Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg											
Total Organic Carbon				2625												U				%			
Loss On Ignition				2610												U				%			
Total BTEX				2760												U				mg/kg			
Total PCBs (7 Congeners)				2815												U				mg/kg			
TPH Total WAC (Mineral Oil)				2670				U				mg/kg											
Total (Of 17) PAH's				2800				N				mg/kg											
pH				2010				U				8.5											
Acid Neutralisation Capacity				2015				N				mol/kg											
Eluate Analysis				10:1 Eluate mg/l				10:1 Eluate mg/kg				To evaluate											
Arsenic				1450				U				0.0025											
Barium				1450				U				0.0079											
Cadmium				1450				U				< 0.00010											
Chromium				1450				U				< 0.0010											
Copper				1450				U				< 0.0010											
Mercury				1450				U				< 0.00050											
Molybdenum				1450				U				0.0027											
Nickel				1450				U				< 0.0010											
Lead				1450				U				< 0.0010											
Antimony				1450				U				< 0.0010											
Selenium				1450				U				< 0.0010											
Zinc				1450				U				< 0.0010											
Chloride				1220				U				< 1.0											
Fluoride				1220				U				0.29											
Sulphate				1220				U				3.2											
Total Dissolved Solids				1020				N				53											
Phenol Index				1920				U				< 0.030											
Dissolved Organic Carbon				1610				U				8.6											

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	8.2

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715				10:1 Eluate mg/kg	Landfill Waste Acceptance Criteria Limits			
Chemtest Sample ID: 845728					Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample Ref:								
Sample ID:								
Sample Location:								
Top Depth(m):								
Bottom Depth(m):								
Sampling Date: 17-Jun-2019				10:1 Eluate mg/kg	10:1 Eluate mg/l	To evaluate	To evaluate	To evaluate
Determinand	SOP	Accred.	Units					
Total Organic Carbon	2625	U	%					
Loss On Ignition	2610	U	%					
Total BTEX	2760	U	mg/kg					
Total PCBs (7 Congeners)	2815	U	mg/kg					
TPH Total WAC (Mineral Oil)	2670	U	mg/kg					
Total (Of 17) PAH's	2800	N	mg/kg					
pH	2010	U						
Acid Neutralisation Capacity	2015	N	mol/kg					
Eluate Analysis								
Arsenic	1450	U	0.0025	< 0.050	0.5	2	25	
Barium	1450	U	0.0039	< 0.50	20	100	300	
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5	
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70	
Copper	1450	U	< 0.0010	< 0.050	2	50	100	
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2	
Molybdenum	1450	U	0.0034	< 0.050	0.5	10	30	
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40	
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50	
Antimony	1450	U	0.0016	0.016	0.06	0.7	5	
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7	
Zinc	1450	U	< 0.0010	< 0.50	4	50	200	
Chloride	1220	U	2.3	23	800	15000	25000	
Fluoride	1220	U	0.57	5.7	10	150	500	
Sulphate	1220	U	3.5	35	1000	20000	50000	
Total Dissolved Solids	1020	N	78	780	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-	
Dissolved Organic Carbon	1610	U	8.5	85	500	800	1000	

Solid Information

Dry mass of test portion/kg	0.090
Moisture (%)	20

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Chemtest Job No: 19-20715				Landfill Waste Acceptance Criteria Limits	Hazardous Waste Landfill
Chemtest Sample ID: 845729					
Sample Ref:					
Sample ID: TP-25					
Sample Location: 1.00					
Top Depth(m): 2.00					
Bottom Depth(m): 17-Jun-2019					
Sampling Date:				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill
Determinand					
SOP					
Accred.					
Units					
Total Organic Carbon					
2625					
2610					
2760					
2815					
2670					
2800					
2010					
2015					
Total Organic Carbon					
Loss On Ignition					
Total BTEX					
Total PCBs (7 Congeners)					
TPH Total WAC (Mineral Oil)					
Total (Of 17) PAH's					
pH					
Acid Neutralisation Capacity					
0.59					
2.1					
< 0.010					
< 0.10					
< 10					
< 2.0					
8.5					
0.060					
To evaluate					
To evaluate					

Chemtest Job No: 19-20715				Landfill Waste Acceptance Criteria Limits Inert Waste Landfill Stable, Non-reactive hazardous waste in non-hazardous Landfill Hazardous Waste Landfill			
Chemtest Sample ID: 845729							
Sample Ref:							
Sample ID: TP-25							
Sample Location: 1.00							
Top Depth(m): 2.00							
Bottom Depth(m): 17-Jun-2019							
Sampling Date:							
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	0.59	3	5	6
Loss On Ignition	2610	U	%	2.1	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.060	--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	0.0014	< 0.050	0.5	2	25
Barium	1450	U	0.053	0.53	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.012	0.12	0.5	10	30
Nickel	1450	U	0.0040	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0031	0.031	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.4	14	800	15000	25000
Fluoride	1220	U	0.25	2.5	10	150	500
Sulphate	1220	U	11	110	1000	20000	50000
Total Dissolved Solids	1020	N	110	1100	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	7.4	74	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	12

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715				Landfill Waste Acceptance Criteria Limits														
Chemtest Sample ID: 845730																		
Sample Ref:																		
Sample ID:																		
Sample Location:																		
Top Depth(m): 1.00				Inert Waste Landfill					Stable, Non- reactive hazardous waste in non- hazardous Landfill					Hazardous Waste Landfill				
Bottom Depth(m): 2.00																		
Sampling Date: 17-Jun-2019																		
SOP																		
Accred.																		
Units				10:1 Eluate mg/kg					Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					To evaluate				
Total Organic Carbon																		
Loss On Ignition																		
Total BTEX																		
Total PCBs (7 Congeners)																		
TPH Total WAC (Mineral Oil)				10:1 Eluate mg/kg					Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					To evaluate				
Total (Of 17) PAH's																		
pH																		
Acid Neutralisation Capacity																		
Eluate Analysis																		
Arsenic				10:1 Eluate mg/l					Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					To evaluate				
Barium																		
Cadmium																		
Chromium																		
Copper																		
Mercury				10:1 Eluate mg/l					Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					To evaluate				
Molybdenum																		
Nickel																		
Lead																		
Antimony																		
Selenium				10:1 Eluate mg/l					Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					To evaluate				
Zinc																		
Chloride																		
Fluoride																		
Sulphate																		
Total Dissolved Solids				10:1 Eluate mg/l					Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					To evaluate				
Phenol Index																		
Dissolved Organic Carbon																		

Solid Information

Dry mass of test portion/kg	0.090
Moisture (%)	20

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715				Landfill Waste Acceptance Criteria		
Chemtest Sample ID: 845731						
Sample Ref:				Limits		
Sample ID:						
Sample Location: TP-16				Inert Waste Landfill		
Top Depth(m): 1.00						
Bottom Depth(m): 2.00				Stable, Non-reactive hazardous waste in non-hazardous Landfill		
Sampling Date: 17-Jun-2019						
Determinand	SOP	Accred.	Units	To evaluate		
Total Organic Carbon	2625	U	%	0.52	3	5
Loss On Ignition	2610	U	%	2.6	--	--
Total BTEX	2760	U	mg/kg	< 0.010	6	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--
pH	2010	U		8.5	--	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.037	--	To evaluate
Eluate Analysis				Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2
Barium	1450	U	0.0013	< 0.50	20	100
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1
Chromium	1450	U	< 0.0010	< 0.050	0.5	10
Copper	1450	U	< 0.0010	< 0.050	2	50
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2
Molybdenum	1450	U	0.011	0.11	0.5	10
Nickel	1450	U	< 0.0010	< 0.050	0.4	10
Lead	1450	U	< 0.0010	< 0.010	0.5	10
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5
Zinc	1450	U	< 0.0010	< 0.50	4	50
Chloride	1220	U	1.1	11	800	15000
Fluoride	1220	U	0.29	2.9	10	150
Sulphate	1220	U	1.8	18	1000	20000
Total Dissolved Solids	1020	N	65	650	4000	60000
Phenol Index	1920	U	< 0.030	< 0.30	1	-
Dissolved Organic Carbon	1610	U	6.7	67	500	800

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	13

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Chemtest Job No:	19-20715
Chemtest Sample ID:	845732

Chemtest Job No:	19-20715
Chemtest Sample ID:	845732

Sample ID:

Top Depth(m): 1.00

Sampling Date: 17-Jun-2019

Determinand	SOP

Total Organic Carbon	2625
----------------------	------

Loss On Ignition	2610
------------------	------

Total BTEX	2760
------------	------

Total PCBs (7 Congeners)	2815
--------------------------	------

TPH Total WAC (Mineral Oil)	2670
-----------------------------	------

Total (Of 17) PAH's	2800
---------------------	------

pH	2010

Acid Neutralisation Capacity	2015

Eluate Analysis

--	--

Arsenic	1450
---------	------

Barium	1450
--------	------

Cadmium	1450
---------	------

Chromium	1450
----------	------

Copper	1450
--------	------

Mercury	1450
---------	------

Molybdenum	1450
Nickel	1450

Nickel	1450
Lead	1450

Lead	1450
Antimony	1450

Aluminum	1430
Selenium	1450

Selenium III	1430
Zinc	1450

ZnCl ₂	1430
Chloride	1220

Chloride	1220
Fluoride	1220

Sulphate	1220
	1220

Carbonate	1020
Total Dissolved Solids	1020

Total Phenol or Compd	
Phenol Index	
1920	

Dissolved Organic Carbon	1610
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Solid Information

Solid immersion	
Dry mass of test portion/kg	
	0.090

Moisture (%)	9.4
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Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	15

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715				10:1 Eluate mg/l	10:1 Eluate mg/kg	Landfill Waste Acceptance Criteria Limits			
Chemtest Sample ID: 845734						Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	Inert Waste Landfill	Stable, Non- reactive hazardous waste in non- hazardous Landfill	Hazardous Waste Landfill
Sample Ref:									
Sample ID:									
Sample Location:									
Top Depth(m):									
Bottom Depth(m):									
Sampling Date: 17-Jun-2019									
Determinand	SOP	Accred.	Units						
Total Organic Carbon	2625	U	%	0.54					
Loss On Ignition	2610	U	%	2.8					
Total BTEX	2760	U	mg/kg	<0.010					
Total PCBs (7 Congeners)	2815	U	mg/kg	<0.10					
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	<1.0					
Total (Of 17) PAH's	2800	N	mg/kg	<2.0					
pH	2010	U		8.4					
Acid Neutralisation Capacity	2015	N	mol/kg	0.026					
Eluate Analysis									
Arsenic	1450	U	0.0016	<0.050					
Barium	1450	U	0.0067	<0.50					
Cadmium	1450	U	<0.00010	<0.010					
Chromium	1450	U	<0.0010	<0.050					
Copper	1450	U	<0.0010	<0.050					
Mercury	1450	U	<0.00050	0.01					
Molybdenum	1450	U	0.028	0.5					
Nickel	1450	U	<0.0010	0.4					
Lead	1450	U	<0.0010	0.5					
Antimony	1450	U	0.0016	0.06					
Selenium	1450	U	<0.0010	0.1					
Zinc	1450	U	<0.0010	4					
Chloride	1220	U	2.1	800					
Fluoride	1220	U	0.40	10					
Sulphate	1220	U	8.6	1000					
Total Dissolved Solids	1020	N	91	4000					
Phenol Index	1920	U	<0.030	1					
Dissolved Organic Carbon	1610	U	9.9	500					
				2					
				100					
				1					
				10					
				70					
				50					
				0.2					
				10					
				10					
				50					
				0.7					
				0.5					
				50					
				15000					
				150					
				20000					
				50000					
				100000					
				-					
				800					
				1000					

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	17

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715					Landfill Waste Acceptance Criteria Limits				
Chemtest Sample ID: 845735									
Sample Ref:									
Sample ID:									
Sample Location: TP-19									
Top Depth(m): 1.00									
Bottom Depth(m): 2.00									
Sampling Date: 17-Jun-2019									
Determinand	SOP	Accred.	Units	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	To evaluate			
Total Organic Carbon	2625	U	%				0.75	3	5
Loss On Ignition	2610	U	%				2.5	--	--
Total BTEX	2760	U	mg/kg				<0.010	6	--
Total PCBs (7 Congeners)	2815	U	mg/kg				<0.10	1	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg				<10	500	--
Total (Of 17) PAH's	2800	N	mg/kg				<2.0	100	--
pH	2010	U					8.5	--	>6
Acid Neutralisation Capacity	2015	N	mol/kg				0.12	--	To evaluate
Eluate Analysis									
Arsenic	1450	U	<0.0010				<0.050	0.5	2
Barium	1450	U	0.0011				<0.50	20	100
Cadmium	1450	U	<0.00010				<0.010	0.04	1
Chromium	1450	U	<0.0010				<0.050	0.5	10
Copper	1450	U	<0.0010				<0.050	2	50
Mercury	1450	U	<0.00050				<0.0050	0.01	0.2
Molybdenum	1450	U	0.016				0.16	0.5	10
Nickel	1450	U	<0.0010	<0.050	0.4	10			
Lead	1450	U	<0.0010	<0.010	0.5	10			
Antimony	1450	U	<0.0010	<0.010	0.06	0.7			
Selenium	1450	U	<0.0010	<0.010	0.1	0.5			
Zinc	1450	U	<0.0010	<0.50	4	50			
Chloride	1220	U	<1.0	<10	800	15000			
Fluoride	1220	U	0.26	2.6	10	150			
Sulphate	1220	U	2.2	22	1000	20000			
Total Dissolved Solids	1020	N	72	710	4000	60000			
Phenol Index	1920	U	<0.030	<0.30	1	-			
Dissolved Organic Carbon	1610	U	9.9	99	500	800			

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	15

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Chemtest Job No:	19-20715
Chemtest Sample ID:	845736

Chemtest Job No:	19-20715
Chemtest Sample ID:	845736

Sample ID:

Top Depth(m):

Sampling Date: 17-Jun-2019

Determinand	SOP

Total Organic Carbon	2625
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Loss On Ignition	2610
------------------	------

Total BTEX	2760
------------	------

Total PCBs (7 Congeners)	2815
--------------------------	------

TPH Total WAC (Mineral Oil)	2670
-----------------------------	------

Total (Of 17) PAH's	2800
---------------------	------

pH	2010

Acid Neutralisation Capacity	2015

Eluate Analysis

--	--

Arsenic	1450
---------	------

Barium	1450
--------	------

Cadmium	1450
---------	------

Chromium	1450
----------	------

Copper	1450
--------	------

Mercury	1450
---------	------

Molybdenum	1450
Nickel	1450

Nickel	1450
Lead	1450

Lead	1450
Antimony	1450

Aluminum	1430
Selenium	1450

Selenium III	1430
Zinc	1450

ZnCl ₂	1430
Chloride	1220

Chloride	1220
Fluoride	1220

Sulphate	1220
	1220

Carbonate	1020
Total Dissolved Solids	1020

Phenol Index	1920
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Dissolved Organic Carbon	1610
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Solid Information

Solid immersion	
Dry mass of test portion/kg	0.090

Moisture (%)	14
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[illegible]

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Player Wills

Chemtest Job No: 19-20715					Landfill Waste Acceptance Criteria Limits		
Chemtest Sample ID: 845737							
Sample Ref:							
Sample ID:							
Sample Location: TP-20							
Top Depth(m): 2.00				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Bottom Depth(m): 3.00							
Sampling Date: 17-Jun-2019							
Determinand	SOP	Accred.	Units	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	To evaluate	To evaluate
Total Organic Carbon	2625	U	%	0.64	0.5	2	25
Loss On Ignition	2610	U	%	2.3	20	100	300
Total BTEX	2760	U	mg/kg	< 0.010	0.04	1	5
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	0.5	10	70
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	2	50	100
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	0.01	0.2	2
pH	2010	U		8.5	0.5	10	30
Acid Neutralisation Capacity	2015	N	mol/kg	0.046	0.4	10	40
Eluate Analysis				10:1 Eluate mg/l	0.5	10	50
Arsenic	1450	U	< 0.0010	< 0.050	0.06	0.7	5
Barium	1450	U	0.0017	< 0.50	0.1	0.5	7
Cadmium	1450	U	< 0.00010	< 0.010	4	50	200
Chromium	1450	U	< 0.0010	< 0.050	800	15000	25000
Copper	1450	U	< 0.0010	< 0.010	10	150	500
Mercury	1450	U	< 0.00050	< 0.0050	1000	20000	50000
Molybdenum	1450	U	0.024	0.24	4000	60000	100000
Nickel	1450	U	< 0.0010	< 0.050	1	-	-
Lead	1450	U	< 0.0010	< 0.010	500	800	1000
Antimony	1450	U	< 0.0010	< 0.010			
Selenium	1450	U	0.0014	0.014			
Zinc	1450	U	< 0.0010	< 0.50			
Chloride	1220	U	1.2	12			
Fluoride	1220	U	0.77	7.7			
Sulphate	1220	U	3.8	38			
Total Dissolved Solids	1020	N	72	710			
Phenol Index	1920	U	< 0.030	< 0.30			
Dissolved Organic Carbon	1610	U	8.5	85			

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	12

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Chemtest Job No: 19-20715				Landfill Waste Acceptance Criteria		
Chemtest Sample ID: 845738						
Sample Ref:						
Sample ID:						
Sample Location: TP-23						
Top Depth(m): 2.00				Limits		
Bottom Depth(m): 3.00						
Sampling Date: 17-Jun-2019						
Determinand						
SOP						
Accred.				Inert Waste Landfill		
Units						
Total Organic Carbon						
Loss On Ignition						
Total BTEX						
Total PCBs (7 Congeners)				Stable, Non-reactive hazardous waste in non-hazardous Landfill		
TPH Total WAC (Mineral Oil)						
Total (Of 17) PAH's						
pH						
Acid Neutralisation Capacity						
Eluate Analysis				Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic				0.5	2	25
Barium				20	100	300
Cadmium				0.04	1	5
Chromium				0.5	10	70
Copper				2	50	100
Mercury				0.01	0.2	2
Molybdenum				0.5	10	30
Nickel				0.4	10	40
Lead				0.5	10	50
Antimony				0.06	0.7	5
Selenium				0.1	0.5	7
Zinc				4	50	200
Chloride				800	15000	25000
Fluoride				10	150	500
Sulphate				1000	20000	50000
Total Dissolved Solids				4000	60000	100000
Phenol Index				1	-	-
Dissolved Organic Carbon				500	800	1000

Waste Acceptance Criteria

Page 27 of 30

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection

SOP	Title	Parameters included	Method summary
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



2183

Final Report

Report No.:	19-32408-1		
Initial Date of Issue:	08-Oct-2019		
Client	O Callaghan Moran & Associates		
Client Address:	15 Melbourne Business Park Model Farm Road Co. Cork IRELAND		
Contact(s):	Conor McGrath		
Project	PW		
Quotation No.:	Date Received:	27-Sep-2019	
Order No.:	Date Instructed:	27-Sep-2019	
No. of Samples:	12	Results Due:	03-Oct-2019
Turnaround (Wkdays):	5		
Date Approved:	08-Oct-2019		
Approved By:			
Details:	Robert Monk, Technical Manager		

Results - Leachate

Client: O Callaghan Moran & Associates		Chemtest Job No.:			19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408
Quotation No.:		Chemtest Sample ID.:			896107	896108	896109	896110	896111	896112	896113	896114
		Sample Location:			A1	A1	A2	A2	A3	A3	A4	A4
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.00	1.50	0.00	1.50	0.00	0.00	0.00	1.50
		Bottom Depth (m):			1.50	3.00	1.50	3.00	1.50	3.00	1.50	3.00
		Date Sampled (\$):			26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019
Determinand		Accred.	SOP	Type	Units	LOD						
Ammonium		U	1220	10:1	mg/l	0.050	0.47	0.55	0.32	1.4	0.43	0.23
Ammonium		N	1220	10:1	mg/kg	0.10	4.7	5.5	3.2	14	4.3	2.3

Results - Leachate

Client: O Callaghan Moran & Associates		Chemtest Job No.: 19-32408		19-32408	19-32408
Quotation No.:		Chemtest Sample ID.: 896115		896117	896118
		Sample Location: A5		A6	A6
		Sample Type: SOIL		SOIL	SOIL
		Top Depth (m): 0.00		0.00	1.50
		Bottom Depth (m): 1.50		1.50	3.00
		Date Sampled (\$): 26-Sep-2019		26-Sep-2019	26-Sep-2019
Determinand	Accred.	SOP	Type	Units	LOD
	U	1220	10:1	mg/l	0.050
	N	1220	10:1	mg/kg	0.10
Ammonium				0.22	0.36
Ammonium				2.2	3.6

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408
Quotation No.:		Chemtest Sample ID.:		896107	896108	896109	896110	896111	896112	896113	896114	896115
		Sample Location:		A1	A1	A2	A2	A3	A3	A4	A4	A5
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.00	1.50	0.00	1.50	0.00	0.00	0.00	1.50	0.00
		Bottom Depth (m):		1.50	3.00	1.50	3.00	1.50	3.00	1.50	3.00	1.50
		Date Sampled (\$):		26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	16	7.3	11	20	14	16	18	17
pH	U	2010		N/A	8.3	10.2	8.5	7.9	8.2	7.6	8.4	7.7
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.81	3.7	0.68	4.2	0.87	2.3	4.5	5.3
Sulphur (Elemental)	U	2180	mg/kg	1.0	< 1.0	8.0	2.3	9.6	< 1.0	5.2	3.9	5.6
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	3.5	6.8	4.4	5.1	5.8	4.9	3.8	4.7
Sulphate (Total)	U	2430	%	0.010	0.33	0.69	0.17	0.49	0.077	0.69	0.42	0.32
Arsenic	U	2450	mg/kg	1.0	32	31	26	40	22	33	32	36
Barium	U	2450	mg/kg	10	150	280	200	160	120	120	180	190
Cadmium	U	2450	mg/kg	0.10	1.1	1.0	1.8	1.3	2.1	1.2	1.4	0.99
Chromium	U	2450	mg/kg	1.0	21	26	13	23	16	16	16	19
Molybdenum	U	2450	mg/kg	2.0	3.9	4.2	5.0	5.9	4.9	4.8	5.2	4.4
Antimony	N	2450	mg/kg	2.0	2.3	3.1	< 2.0	2.6	< 2.0	2.2	2.0	2.4
Copper	U	2450	mg/kg	0.50	130	67	27	110	35	89	91	99
Mercury	U	2450	mg/kg	0.10	1.3	0.81	0.20	1.8	0.28	1.2	1.2	1.7
Nickel	U	2450	mg/kg	0.50	48	44	35	52	48	45	46	42
Lead	U	2450	mg/kg	0.50	390	180	38	370	47	250	270	480
Selenium	U	2450	mg/kg	0.20	1.0	< 0.20	0.32	1.1	0.42	0.86	0.81	1.0
Zinc	U	2450	mg/kg	0.50	140	150	51	140	73	100	110	130
Chromium (Trivalent)	N	2490	mg/kg	1.0	21	26	13	23	16	16	16	19
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	0.61	0.83	0.91	5.8	0.95	5.2	5.8	6.1
Mineral Oil	N	2670	mg/kg	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	590
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	30
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	96
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	79
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	190
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	190
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	590
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Client: O Callaghan Moran & Associates				Chemtest Job No.:		19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408
Quotation No.:				Chemtest Sample ID.:		896107	896108	896109	896110	896111	896112	896113	896114
				Sample Location:		A1	A1	A2	A2	A3	A3	A4	A5
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00
				Bottom Depth (m):		1.50	3.00	1.50	3.00	1.50	3.00	1.50	1.50
				Date Sampled (\$):		26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	24
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	720
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3300
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	8900
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	590
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	14000
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	14000
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.13	< 0.10	< 0.10	< 0.10	< 0.10	0.25	0.31
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.16	< 0.10	< 0.10	< 0.10	< 0.10	0.11	0.28
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.11
Phenanthrene	U	2800	mg/kg	0.10	0.80	< 0.10	1.8	< 0.10	< 0.10	1.1	0.25	0.71	2.6
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.21	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.33
Fluoranthene	U	2800	mg/kg	0.10	0.70	< 0.10	2.1	< 0.10	< 0.10	0.85	0.12	0.27	4.0
Pyrene	U	2800	mg/kg	0.10	0.67	< 0.10	2.0	< 0.10	< 0.10	0.78	< 0.10	0.23	3.6
Benzo[a]anthracene	U	2800	mg/kg	0.10	0.33	< 0.10	0.87	< 0.10	< 0.10	0.26	< 0.10	< 0.10	1.8
Chrysene	U	2800	mg/kg	0.10	0.36	< 0.10	1.1	< 0.10	< 0.10	0.28	< 0.10	0.10	2.3
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	0.47	< 0.10	1.2	< 0.10	< 0.10	0.27	< 0.10	< 0.10	2.3
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	0.29	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.91
Benzo[a]pyrene	U	2800	mg/kg	0.10	0.30	< 0.10	0.73	< 0.10	< 0.10	0.14	< 0.10	< 0.10	1.7
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	0.13	< 0.10	0.35	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.1
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	0.15	< 0.10	0.45	< 0.10	< 0.10	0.10	< 0.10	< 0.10	0.87
Coronene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	3.9	< 2.0	11	< 2.0	< 2.0	3.8	< 2.0	< 2.0	22
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408	19-32408
Quotation No.:		Chemtest Sample ID.:		896108	896109	896110	896111	896112	896113	896114	896115	
		Sample Location:		A1	A2	A2	A3	A3	A4	A4	A5	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.00	0.00	1.50	0.00	0.00	0.00	1.50	0.00	
		Bottom Depth (m):		1.50	1.50	3.00	1.50	3.00	1.50	3.00	1.50	
		Date Sampled (\$):		26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD								
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-32408	19-32408	19-32408
Quotation No.:		Chemtest Sample ID.:		896116	896117	896118
		Sample Location:		A5	A6	A6
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		1.50	0.00	1.50
		Bottom Depth (m):		3.00	1.50	3.00
		Date Sampled (\$):		26-Sep-2019	26-Sep-2019	26-Sep-2019
		Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-
Moisture	N	2030	%	0.020	13	23
pH	U	2010		N/A	8.9	8.0
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	2.7	2.4
Sulphur (Elemental)	U	2180	mg/kg	1.0	9.3	8.1
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	4.4	4.0
Sulphate (Total)	U	2430	%	0.010	0.22	0.87
Arsenic	U	2450	mg/kg	1.0	32	41
Barium	U	2450	mg/kg	10	190	150
Cadmium	U	2450	mg/kg	0.10	1.6	0.93
Chromium	U	2450	mg/kg	1.0	19	16
Molybdenum	U	2450	mg/kg	2.0	5.1	6.3
Antimony	N	2450	mg/kg	2.0	2.7	7.1
Copper	U	2450	mg/kg	0.50	120	110
Mercury	U	2450	mg/kg	0.10	1.3	1.5
Nickel	U	2450	mg/kg	0.50	51	55
Lead	U	2450	mg/kg	0.50	350	330
Selenium	U	2450	mg/kg	0.20	0.48	1.6
Zinc	U	2450	mg/kg	0.50	140	160
Chromium (Trivalent)	N	2490	mg/kg	1.0	19	16
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	4.9	6.7
Mineral Oil	N	2670	mg/kg	10	< 10	70
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	15
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	11
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	45
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	70
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0

Project: PW

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-32408	19-32408	19-32408
Quotation No.:		Chemtest Sample ID.:		896116	896117	896118
		Sample Location:		A5	A6	A6
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		1.50	0.00	1.50
		Bottom Depth (m):		3.00	1.50	3.00
		Date Sampled (\$):		26-Sep-2019	26-Sep-2019	26-Sep-2019
		Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	0.16	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	0.20	< 0.10
Fluorene	U	2800	mg/kg	0.10	0.12	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	2.0	1.1
Anthracene	U	2800	mg/kg	0.10	0.20	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	1.9	0.58
Pyrene	U	2800	mg/kg	0.10	4.7	0.50
Benzo[a]anthracene	U	2800	mg/kg	0.10	0.80	0.17
Chrysene	U	2800	mg/kg	0.10	1.0	0.26
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	1.1	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	0.30	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	0.66	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	0.35	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	0.35	< 0.10
Coronene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	11	2.6
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-32408	19-32408	19-32408
Quotation No.:		Chemtest Sample ID.:		896116	896117	896118
		Sample Location:		A5	A6	A6
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		1.50	0.00	1.50
		Bottom Depth (m):		3.00	1.50	3.00
		Date Sampled (\$):		26-Sep-2019	26-Sep-2019	26-Sep-2019
		Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-32408					Landfill Waste Acceptance Criteria Limits		
Chemtest Sample ID: 896107							
Sample Ref:							
Sample ID:							
Sample Location: A1							
Top Depth(m): 0.00				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Bottom Depth(m): 1.50							
Sampling Date (\$): 26-Sep-2019							
Determinand	SOP	Accred.	Units	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	To evaluate	
Total Organic Carbon	2625	U	%	5.1	3	5	
Loss On Ignition	2610	U	%	16	--	--	
Total BTEX	2760	U	mg/kg	< 0.010	6	--	
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	
Total (Of 17) PAH's	2800	N	mg/kg	3.9	100	--	
pH	2010	U		8.0	--	>6	
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	To evaluate	
Eluate Analysis				10:1 Eluate mg/l	To evaluate		
Arsenic	1450	U	0.0026	< 0.050	0.5	2	
Barium	1450	U	0.0058	< 0.50	20	100	
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	
Copper	1450	U	0.0034	< 0.050	2	50	
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	
Molybdenum	1450	U	0.0016	< 0.050	0.5	10	
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	
Lead	1450	U	< 0.0010	< 0.010	0.5	10	
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	
Selenium	1450	U	0.0021	0.021	0.1	0.5	
Zinc	1450	U	< 0.0010	< 0.50	4	50	
Chloride	1220	U	8.3	83	800	15000	
Fluoride	1220	U	0.48	4.8	10	150	
Sulphate	1220	U	49	490	1000	20000	
Total Dissolved Solids	1020	N	180	1800	4000	60000	
Phenol Index	1920	U	< 0.030	< 0.30	1	-	
Dissolved Organic Carbon	1610	U	4.0	< 50	500	800	

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	21

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No:	19-32408	Landfill Waste Acceptance Criteria Limits			
Chemtest Sample ID:	896108				
Sample Ref:					
Sample ID:	A1				
Sample Location:	1.50	Inert Waste Landfill			
Top Depth(m):	3.00				
Bottom Depth(m):	26-Sep-2019				
Sampling Date (\$):					
Determinand	SOP	Accred.	Units	10:1 Eluate	
Total Organic Carbon	2625	U	%	0.61	3
Loss On Ignition	2610	U	%	2.3	--
Total BTEX	2760	U	mg/kg	< 0.010	6
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100
pH	2010	U		8.3	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.020	--
Eluate Analysis				10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg
Arsenic	1450	U	0.0093	0.093	0.5
Barium	1450	U	0.0049	< 0.50	2
Cadmium	1450	U	< 0.00010	< 0.010	20
Chromium	1450	U	< 0.0010	< 0.050	0.04
Copper	1450	U	0.0049	< 0.050	0.5
Mercury	1450	U	< 0.00050	< 0.0050	2
Molybdenum	1450	U	0.012	0.12	0.01
Nickel	1450	U	0.0010	< 0.050	0.5
Lead	1450	U	< 0.0010	< 0.010	0.4
Antimony	1450	U	0.0016	0.016	0.5
Selenium	1450	U	0.0062	0.062	0.7
Zinc	1450	U	< 0.0010	< 0.50	0.1
Chloride	1220	U	6.5	65	4
Fluoride	1220	U	0.18	1.8	800
Sulphate	1220	U	83	830	10
Total Dissolved Solids	1020	N	72	710	1000
Phenol Index	1920	U	< 0.030	< 0.30	4000
Dissolved Organic Carbon	1610	U	5.2	52	1
					500
					800
					1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	16

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No:	19-32408	Landfill Waste Acceptance Criteria Limits		
Chemtest Sample ID:	896109			
Sample Ref:				
Sample ID:	A2			
Sample Location:	0.00	Inert Waste Landfill		
Top Depth(m):	1.50			
Bottom Depth(m):	26-Sep-2019			
Sampling Date (\$):				
Determinand	SOP	Accred.	Units	
Total Organic Carbon	2625	U	%	0.83
Loss On Ignition	2610	U	%	5.3
Total BTEX	2760	U	mg/kg	< 0.010
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10
Total (Of 17) PAH's	2800	N	mg/kg	11
pH	2010	U		10.2
Acid Neutralisation Capacity	2015	N	mol/kg	0.028
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg
Arsenic	1450	U	0.0022	< 0.050
Barium	1450	U	< 0.0010	< 0.50
Cadmium	1450	U	< 0.00010	< 0.010
Chromium	1450	U	< 0.0010	< 0.050
Copper	1450	U	0.0024	< 0.050
Mercury	1450	U	< 0.00050	< 0.0050
Molybdenum	1450	U	0.013	0.13
Nickel	1450	U	< 0.0010	< 0.050
Lead	1450	U	< 0.0010	< 0.010
Antimony	1450	U	< 0.0010	< 0.010
Selenium	1450	U	0.0020	0.020
Zinc	1450	U	< 0.0010	< 0.50
Chloride	1220	U	8.3	83
Fluoride	1220	U	0.22	2.2
Sulphate	1220	U	18	180
Total Dissolved Solids	1020	N	200	2000
Phenol Index	1920	U	< 0.030	< 0.30
Dissolved Organic Carbon	1610	U	4.7	< 50
				Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg
				Inert Waste Landfill
				Stable, Non-reactive hazardous waste in non-hazardous Landfill
				Hazardous Waste Landfill
				To evaluate
				To evaluate

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	7.3

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-32408				Landfill Waste Acceptance Criteria		
Chemtest Sample ID: 896110						
Sample Ref:				Limits		
Sample ID:						
Sample Location: A2				Inert Waste Landfill		
Top Depth(m): 1.50						
Bottom Depth(m): 3.00				Stable, Non-reactive hazardous waste in non-hazardous Landfill		
Sampling Date (\$): 26-Sep-2019						
Determinand	SOP	Accred.	Units	10:1 Eluate mg/kg		
Total Organic Carbon	2625	U	%	0.91	3	5
Loss On Ignition	2610	U	%	2.9	--	--
Total BTEX	2760	U	mg/kg	<0.010	6	--
Total PCBs (7 Congeners)	2815	U	mg/kg	<0.10	1	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	<10	500	--
Total (Of 17) PAH's	2800	N	mg/kg	<2.0	100	--
pH	2010	U		8.5	--	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.087	--	To evaluate
Eluate Analysis				Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	<0.0010	<0.050	0.5	2
Barium	1450	U	0.0016	<0.50	20	100
Cadmium	1450	U	<0.00010	<0.010	0.04	1
Chromium	1450	U	<0.0010	<0.050	0.5	10
Copper	1450	U	<0.0010	<0.050	2	50
Mercury	1450	U	<0.00050	<0.0050	0.01	0.2
Molybdenum	1450	U	0.010	0.10	0.5	10
Nickel	1450	U	<0.0010	<0.050	0.4	10
Lead	1450	U	<0.0010	<0.010	0.5	10
Antimony	1450	U	<0.0010	<0.010	0.06	0.7
Selenium	1450	U	0.0023	0.023	0.1	0.5
Zinc	1450	U	<0.0010	<0.50	4	50
Chloride	1220	U	4.3	43	800	15000
Fluoride	1220	U	0.27	2.7	10	150
Sulphate	1220	U	29	290	1000	20000
Total Dissolved Solids	1020	N	98	970	4000	60000
Phenol Index	1920	U	<0.030	<0.30	1	-
Dissolved Organic Carbon	1610	U	3.8	<50	500	800

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	11

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-32408		Landfill Waste Acceptance Criteria Limits											
Chemtest Sample ID: 896111													
Sample Ref:													
Sample ID: A3													
Sample Location: 0.00													
Top Depth(m): 1.50		Inert Waste Landfill		Stable, Non-reactive hazardous waste in non-hazardous Landfill		Hazardous Waste Landfill							
Bottom Depth(m):													
Sampling Date (\$): 26-Sep-2019													
Determinand													
SOP													
Accred.		Units											
Total Organic Carbon		U		%		5.8		3		5		6	
Loss On Ignition		U		%		11		--		--		10	
Total BTEX		U		mg/kg		< 0.010		6		--		--	
Total PCBs (7 Congeners)		U		mg/kg		< 0.10		1		--		--	
TPH Total WAC (Mineral Oil)		U		mg/kg		< 10		500		--		--	
Total (Of 17) PAH's		N		mg/kg		3.8		100		--		--	
pH		U				7.9		--		>6		--	
Acid Neutralisation Capacity		N		mol/kg		0.043		--		To evaluate		To evaluate	
Eluate Analysis				10:1 Eluate mg/l		10:1 Eluate mg/kg		Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					
Arsenic		U		0.0095		0.095		0.5		2		25	
Barium		U		0.0071		< 0.50		20		100		300	
Cadmium		U		< 0.00010		< 0.010		0.04		1		5	
Chromium		U		< 0.0010		< 0.050		0.5		10		70	
Copper		U		0.0018		< 0.050		2		50		100	
Mercury		U		< 0.00050		< 0.0050		0.01		0.2		2	
Molybdenum		U		0.0081		0.081		0.5		10		30	
Nickel		U		< 0.0010		< 0.050		0.4		10		40	
Lead		U		< 0.0010		< 0.010		0.5		10		50	
Antimony		U		0.0013		0.013		0.06		0.7		5	
Selenium		U		0.0054		0.054		0.1		0.5		7	
Zinc		U		< 0.0010		< 0.50		4		50		200	
Chloride		U		6.4		64		800		15000		25000	
Fluoride		U		0.22		2.2		10		150		500	
Sulphate		U		88		880		1000		20000		50000	
Total Dissolved Solids		N		200		1900		4000		60000		100000	
Phenol Index		U		< 0.030		< 0.30		1		-		-	
Dissolved Organic Carbon		U		3.9		< 50		500		800		1000	

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	20

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-32408					Landfill Waste Acceptance Criteria Limits		
Chemtest Sample ID: 896112							
Sample Ref:							
Sample ID: A3							
Sample Location: 0.00							
Top Depth(m): 3.00				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Bottom Depth(m): 26-Sep-2019							
Sampling Date (\$):							
Determinand	SOP	Accred.	Units	10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	To evaluate
Total Organic Carbon	2625	U	%	< 0.0010	< 0.050	0.5	2
Loss On Ignition	2610	U	%	0.0011	< 0.50	20	100
Total BTEX	2760	U	mg/kg	< 0.00010	< 0.010	0.04	1
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.0010	< 0.050	0.5	10
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 0.0010	< 0.050	2	50
Total (Of 17) PAH's	2800	N	mg/kg	< 0.00050	< 0.0050	0.01	0.2
pH	2010	U		0.015	0.15	0.5	10
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0010	< 0.050	0.4	10
Eluate Analysis							
Arsenic	1450	U	< 0.0010		< 0.050	0.5	2
Barium	1450	U	0.0011		< 0.50	20	100
Cadmium	1450	U	< 0.00010		< 0.010	0.04	1
Chromium	1450	U	< 0.0010		< 0.050	0.5	10
Copper	1450	U	< 0.0010		< 0.050	2	50
Mercury	1450	U	< 0.00050		< 0.0050	0.01	0.2
Molybdenum	1450	U	0.015		0.15	0.5	10
Nickel	1450	U	< 0.0010		< 0.050	0.4	10
Lead	1450	U	< 0.0010		< 0.010	0.5	10
Antimony	1450	U	< 0.0010		< 0.010	0.06	0.7
Selenium	1450	U	0.0020		0.020	0.1	0.5
Zinc	1450	U	< 0.0010		< 0.50	4	50
Chloride	1220	U	5.0		50	800	15000
Fluoride	1220	U	0.32		3.2	10	150
Sulphate	1220	U	22		220	1000	20000
Total Dissolved Solids	1020	N	72		710	4000	60000
Phenol Index	1920	U	< 0.030		< 0.30	1	-
Dissolved Organic Carbon	1610	U	4.4		< 50	500	800
							1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Project ID	Chemtest Job No: 19-32408					Landfill Waste Acceptance Criteria		
	Chemtest Sample ID: 896113					Limits		
	Sample Ref: A4					Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
	Sample ID: 0.00							
Sample Location: 1.50					10:1 Eluate mg/kg	0.5	2	25
Top Depth(m): 26-Sep-2019								
Bottom Depth(m):					10:1 Eluate mg/kg	20	100	300
Sampling Date (\$):					< 0.010	0.04	1	5
Determinand					< 0.050	0.5	10	70
SOP					< 0.050	2	50	100
2625					< 0.0050	0.01	0.2	2
2610					0.12	0.5	10	30
2760					< 0.050	0.4	10	40
2815					< 0.010	0.5	10	50
2670					< 0.010	0.06	0.7	5
2800					< 0.010	0.1	0.5	7
2010					< 0.50	4	50	200
2015					43	800	15000	25000
Total Organic Carbon					1.2	10	150	500
Loss On Ignition					3500	1000	20000	50000
Total BTEX					4100	4000	60000	100000
Total PCBs (7 Congeners)					< 0.30	1	-	-
TPH Total WAC (Mineral Oil)					64	500	800	1000
Total (Of 17) PAH's								
pH								
Acid Neutralisation Capacity								
Eluate Analysis					10:1 Eluate mg/l	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic					0.0077	0.5	2	25
Barium					0.014	20	100	300
Cadmium					< 0.00010	0.04	1	5
Chromium					< 0.0010	0.5	10	70
Copper					< 0.0010	2	50	100
Mercury					< 0.00050	0.01	0.2	2
Molybdenum					0.012	0.5	10	30
Nickel					< 0.0010	0.4	10	40
Lead					< 0.0010	0.5	10	50
Antimony					< 0.0010	0.06	0.7	5
Selenium					0.011	0.1	0.5	7
Zinc					0.0092	4	50	200
Chloride					4.3	800	15000	25000
Fluoride					0.12	10	150	500
Sulphate					350	1000	20000	50000
Total Dissolved Solids					420	4000	60000	100000
Phenol Index					< 0.030	1	-	-
Dissolved Organic Carbon					6.4	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	16

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-32408		Landfill Waste Acceptance Criteria Limits			
Chemtest Sample ID: 896114					
Sample Ref:					
Sample ID: A4					
Sample Location: Top Depth(m): Bottom Depth(m): Sampling Date (\$): 26-Sep-2019					
Determinand	SOP	Accred.	Units		
Total Organic Carbon	2625	U	%	5.8	3
Loss On Ignition	2610	U	%	9.8	--
Total BTEX	2760	U	mg/kg	< 0.010	6
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500
Total (Of 17) PAH's	2800	N	mg/kg	4.0	100
pH	2010	U		8.4	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.073	--
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg
Arsenic	1450	U	0.0078	0.078	0.5
Barium	1450	U	0.0094	< 0.50	20
Cadmium	1450	U	< 0.00010	< 0.010	0.04
Chromium	1450	U	< 0.0010	< 0.050	0.5
Copper	1450	U	0.0014	< 0.050	2
Mercury	1450	U	< 0.00050	< 0.0050	0.01
Molybdenum	1450	U	0.011	0.11	0.5
Nickel	1450	U	< 0.0010	< 0.050	0.4
Lead	1450	U	< 0.0010	< 0.010	0.5
Antimony	1450	U	0.0011	0.011	0.06
Selenium	1450	U	0.0053	0.053	0.1
Zinc	1450	U	< 0.0010	< 0.50	4
Chloride	1220	U	7.1	71	800
Fluoride	1220	U	4.8	48	10
Sulphate	1220	U	160	1600	1000
Total Dissolved Solids	1020	N	250	2500	4000
Phenol Index	1920	U	< 0.030	< 0.30	1
Dissolved Organic Carbon	1610	U	4.9	< 50	500
				To evaluate	To evaluate
				To evaluate	To evaluate

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	18

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-32408		Landfill Waste Acceptance Criteria Limits								
Chemtest Sample ID: 896115										
Sample Ref:										
Sample ID: A5										
Sample Location: 0.00										
Top Depth(m): 1.50		Inert Waste Landfill								
Bottom Depth(m): 26-Sep-2019										
Sampling Date (\$):										
Determinand										
SOP										
Accred.		Stable, Non-reactive hazardous waste in non-hazardous Landfill								
Units										
Total Organic Carbon	2625				U	%	6.1	3	5	6
Loss On Ignition	2610				U	%	8.5	--	--	10
Total BTEX	2760				U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)		U	mg/kg	< 0.10	1	--	--			
TPH Total WAC (Mineral Oil)		U	mg/kg	14000	500	--	--			
Total (Of 17) PAH's		N	mg/kg	22	100	--	--			
pH		U		7.7	--	>6	--			
Acid Neutralisation Capacity		N	mol/kg	0.030	--	To evaluate	To evaluate			
Eluate Analysis		10:1 Eluate mg/l		10:1 Eluate mg/kg		Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg				
Arsenic			0.0076	0.076	0.5	2	25			
Barium		U	0.0082	< 0.50	20	100	300			
Cadmium		U	< 0.00010	< 0.010	0.04	1	5			
Chromium		U	< 0.0010	< 0.050	0.5	10	70			
Copper		U	0.0032	< 0.050	2	50	100			
Mercury		U	< 0.00050	< 0.0050	0.01	0.2	2			
Molybdenum		U	0.010	0.10	0.5	10	30			
Nickel		U	< 0.0010	< 0.050	0.4	10	40			
Lead		U	< 0.0010	< 0.010	0.5	10	50			
Antimony		U	0.0018	0.018	0.06	0.7	5			
Selenium		U	0.0056	0.056	0.1	0.5	7			
Zinc		U	0.0022	< 0.50	4	50	200			
Chloride		U	3.3	33	800	15000	25000			
Fluoride		U	1.0	10	10	150	500			
Sulphate		U	140	1400	1000	20000	50000			
Total Dissolved Solids		N	250	2500	4000	60000	100000			
Phenol Index		U	< 0.030	< 0.30	1	-	-			
Dissolved Organic Carbon		U	4.2	< 50	500	800	1000			

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	17

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-32408				Landfill Waste Acceptance Criteria Limits				
Chemtest Sample ID: 896116								
Sample Ref:								
Sample ID: A5								
Sample Location: Top Depth(m): Bottom Depth(m): Sampling Date (\$):								
1.50 3.00 26-Sep-2019								
Determinand		SOP	Accred.	Units				
Total Organic Carbon		2625	U	%	4.9	3	5	6
Loss On Ignition		2610	U	%	11	--	--	10
Total BTEX		2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)		2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)		2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's		2800	N	mg/kg	11	100	--	--
pH		2010	U		7.8	--	>6	--
Acid Neutralisation Capacity		2015	N	mol/kg	0.010	--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic		1450	U	0.0068	0.068	0.5	2	25
Barium		1450	U	0.0050	< 0.50	20	100	300
Cadmium		1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium		1450	U	< 0.0010	< 0.050	0.5	10	70
Copper		1450	U	0.0023	< 0.050	2	50	100
Mercury		1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum		1450	U	0.0047	< 0.050	0.5	10	30
Nickel		1450	U	< 0.0010	< 0.050	0.4	10	40
Lead		1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony		1450	U	0.0014	0.014	0.06	0.7	5
Selenium		1450	U	0.0032	0.032	0.1	0.5	7
Zinc		1450	U	< 0.0010	< 0.50	4	50	200
Chloride		1220	U	7.1	71	800	15000	25000
Fluoride		1220	U	0.80	8.0	10	150	500
Sulphate		1220	U	45	450	1000	20000	50000
Total Dissolved Solids		1020	N	130	1300	4000	60000	100000
Phenol Index		1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon		1610	U	4.6	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	32

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-32408		Landfill Waste Acceptance Criteria Limits									
Chemtest Sample ID: 896117											
Sample Ref:											
Sample ID: A6											
Sample Location: 0.00											
Top Depth(m): 1.50		Inert Waste Landfill		Stable, Non-reactive hazardous waste in non-hazardous Landfill		Hazardous Waste Landfill					
Bottom Depth(m): 26-Sep-2019											
Sampling Date (\$):											
Determinand											
SOP											
Accred.		Units		6.7		3		5		6	
Total Organic Carbon		U		%							
Loss On Ignition		U		%		9.9		--		10	
Total BTEX		U		mg/kg		< 0.010		6		--	
Total PCBs (7 Congeners)		U		mg/kg		< 0.10		1		--	
TPH Total WAC (Mineral Oil)		U		mg/kg		240		500		--	
Total (Of 17) PAH's		N		mg/kg		30		100		--	
pH		U				8.9		--		>6	
Acid Neutralisation Capacity		N		mol/kg		0.024		--		To evaluate	
Eluate Analysis				10:1 Eluate mg/l		10:1 Eluate mg/kg		Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic		U		0.0062		0.062		0.5		2	
Barium		U		0.0066		< 0.50		20		100	
Cadmium		U		< 0.00010		< 0.010		0.04		1	
Chromium		U		< 0.0010		< 0.050		0.5		10	
Copper		U		< 0.0010		< 0.050		2		50	
Mercury		U		< 0.00050		< 0.0050		0.01		0.2	
Molybdenum		U		0.0042		< 0.050		0.5		10	
Nickel		U		< 0.0010		< 0.050		0.4		10	
Lead		U		< 0.0010		< 0.010		0.5		10	
Antimony		U		0.0010		0.010		0.06		0.7	
Selenium		U		0.0032		0.032		0.1		0.5	
Zinc		U		< 0.0010		< 0.50		4		50	
Chloride		U		3.2		32		800		15000	
Fluoride		U		0.26		2.6		10		150	
Sulphate		U		160		1600		1000		20000	
Total Dissolved Solids		N		230		2300		4000		60000	
Phenol Index		U		< 0.030		< 0.30		1		-	
Dissolved Organic Carbon		U		4.0		< 50		500		800	

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	13

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-32408				Landfill Waste Acceptance Criteria Limits			
Chemtest Sample ID: 896118							
Sample Ref:							
Sample ID: A6							
Sample Location: Top Depth(m): 1.50 Bottom Depth(m): 3.00 Sampling Date (\$): 26-Sep-2019							
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	4.5	3	5	6
Loss On Ignition	2610	U	%	8.9	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	2.6	100	--	--
pH	2010	U		8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.019	--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	0.0013	< 0.050	0.5	2	25
Barium	1450	U	0.0032	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.014	0.14	0.5	10	30
Nickel	1450	U	0.0015	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0023	0.023	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	5.4	54	800	15000	25000
Fluoride	1220	U	0.39	3.9	10	150	500
Sulphate	1220	U	39	390	1000	20000	50000
Total Dissolved Solids	1020	N	120	1200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.7	67	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	23

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44 Aromatics: >C5–C7, >C7–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44	Dichloromethane extraction / GCxGC FID detection

SOP	Title	Parameters included	Method summary
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"
- \$ This information has been supplied by the client and can affect the integrity of test data.

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



Amended Report

Report No.: 19-35542-2

Initial Date of Issue: 01-Nov-2019 **Date of Re-Issue:** 04-Nov-2019

Client O Callaghan Moran & Associates

Client Address: 15 Melbourne Business Park
Model Farm Road
Co. Cork
IRELAND

Contact(s): Conor McGrath

Project PW

Quotation No.: **Date Received:** 23-Oct-2019

Order No.: **Date Instructed:** 23-Oct-2019

No. of Samples: 12

Turnaround (Wkdays): 5 **Results Due:** 29-Oct-2019

Date Approved: 01-Nov-2019

Approved By:


Details: Glynn Harvey, Laboratory Manager

Results - Leachate

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542
Quotation No.:		Chemtest Sample ID.:		911356	911357	911358	911359	911360	911361	911362	911363	911364
		Sample Location:		TP-B1	TP-B1	TP-B2	TP-B2	TP-B3	TP-B3	TP-B4	TP-B4	TP-B5
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.00	1.50	0.00	1.50	0.00	1.50	0.00	1.50	0.00
		Bottom Depth (m):		1.50	3.00	1.50	3.00	1.50	3.00	1.50	3.00	1.50
		Date Sampled (\$):		21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019
Determinand		Accred.	SOP	Type	Units	LOD						
Ammonium	U	1220	10:1	mg/l	0.050	0.065	0.051	0.071	0.059	0.11	0.064	0.052
Ammonium	N	1220	10:1	mg/kg	0.10	1.4	1.1	0.98	0.83	1.4	1.0	1.0

Results - Leachate

Chemtest Job No.:		19-35542	19-35542	19-35542
Chemtest Sample ID.:		911365	911366	911367
Sample Location:		TP-B5	TP-B6	TP-B6
Sample Type:		SOIL	SOIL	SOIL
Top Depth (m):		1.50	1.50	0.00
Bottom Depth (m):		3.00	3.00	1.50
Date Sampled (\$):		21-Oct-2019	21-Oct-2019	21-Oct-2019
Determinand	Accred.	SOP	Type	Units
	U	1220	10:1	mg/l
	N	1220	10:1	mg/kg
Ammonium				0.050
Ammonium				0.86
				0.051
				0.75
				1.4

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542
Quotation No.:		Chemtest Sample ID.:		911356	911357	911358	911359	911360	911361	911362	911363	19-35542
		Sample Location:		TP-B1	TP-B1	TP-B2	TP-B2	TP-B3	TP-B3	TP-B4	TP-B4	19-35542
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	19-35542
		Top Depth (m):		0.00	1.50	0.00	1.50	0.00	1.50	0.00	1.50	19-35542
		Bottom Depth (m):		1.50	3.00	1.50	3.00	1.50	3.00	1.50	3.00	19-35542
		Date Sampled (\$):		21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	19-35542
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	19-35542
Determinand		Accred.	SOP	Units	LOD							
ACM Type		U	2192		N/A							
Asbestos Identification		U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	
ACM Detection Stage		U	2192		N/A							
Asbestos by Gravimetry		U	2192	%	0.001							
Total Asbestos		N	2192	%	0.001							
Moisture		N	2030	%	0.020	8.9	25	26	17	28	32	
pH		U	2010		N/A	8.8	7.8	7.8	8.4	7.8	7.7	
Boron (Hot Water Soluble)		U	2120	mg/kg	0.40	1.3	2.6	2.8	0.63	4.3	3.7	
Sulphur (Elemental)		U	2180	mg/kg	1.0	12	25	55	7.1	17	20	
Cyanide (Total)		U	2300	mg/kg	0.50	< 0.50	0.50	0.90	< 0.50	< 0.50	< 0.50	
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	9.5	8.2	6.0	3.7	5.5	5.4	
Sulphate (Total)		U	2430	%	0.010	0.16	0.24	0.44	0.063	0.39	0.34	
Arsenic		U	2450	mg/kg	1.0	25	36	45	18	36	40	
Barium		U	2450	mg/kg	10	150	170	400	220	170	220	
Cadmium		U	2450	mg/kg	0.10	1.0	1.1	1.2	2.0	1.2	1.4	
Chromium		U	2450	mg/kg	1.0	20	18	21	17	21	19	
Molybdenum		U	2450	mg/kg	2.0	2.2	4.3	5.6	6.6	4.9	4.9	
Antimony		N	2450	mg/kg	2.0	< 2.0	3.1	7.6	2.3	3.3	3.6	
Copper		U	2450	mg/kg	0.50	53	140	160	28	140	140	
Mercury		U	2450	mg/kg	0.10	0.75	2.2	2.8	0.36	1.8	2.1	
Nickel		U	2450	mg/kg	0.50	38	63	60	48	63	63	
Lead		U	2450	mg/kg	0.50	200	430	820	89	560	860	
Selenium		U	2450	mg/kg	0.20	0.25	0.92	1.2	0.67	0.89	0.94	
Zinc		U	2450	mg/kg	0.50	100	150	360	96	160	160	
Chromium (Trivalent)		N	2490	mg/kg	1.0	20	18	21	17	21	19	
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Total Organic Carbon		U	2625	%	0.20	9.9	9.6	2.1	0.81	5.1	11	
Mineral Oil		N	2670	mg/kg	10	< 10	44	150	< 10	45	230	
Aliphatic TPH >C5-C6		N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C6-C8		N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C8-C10		U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C10-C12		U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C12-C16		U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C16-C21		U	2680	mg/kg	1.0	< 1.0	< 1.0	19	< 1.0	< 1.0	22	
Aliphatic TPH >C21-C35		U	2680	mg/kg	1.0	< 1.0	44	130	< 1.0	45	150	

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542
Quotation No.:		Chemtest Sample ID.:		911357	911358	911359	911360	911361	911362	911363	911364	
		Sample Location:		TP-B1	TP-B2	TP-B2	TP-B3	TP-B3	TP-B4	TP-B4	TP-B5	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.00	0.00	1.50	0.00	1.50	0.00	1.50	0.00	
		Bottom Depth (m):		1.50	1.50	3.00	1.50	3.00	1.50	3.00	1.50	
		Date Sampled (\$):		21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	150	< 5.0	< 5.0	230	< 5.0	14	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	22	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	33	< 1.0	< 1.0	110	< 1.0	< 1.0	4.5
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	51	400	9.3	< 1.0	560	< 1.0	32	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	51	430	9.3	< 5.0	700	< 5.0	36	< 1.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	51	580	< 1.0	< 1.0	930	< 1.0	50	< 1.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	0.18	0.41	< 0.10	< 0.10	3.8	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	0.26	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	0.13	0.54	< 0.10	< 0.10	1.6	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	0.12	0.58	< 0.10	< 0.10	1.1	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	1.5	7.6	0.24	0.61	7.9	< 0.10	1.4	< 0.10
Anthracene	U	2800	mg/kg	0.10	0.20	1.3	< 0.10	< 0.10	1.9	< 0.10	0.14	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	2.2	12	0.24	0.44	7.2	< 0.10	1.3	< 0.10
Pyrene	U	2800	mg/kg	0.10	2.2	11	0.22	0.44	6.1	< 0.10	1.0	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	1.1	6.5	< 0.10	< 0.10	3.2	< 0.10	0.35	< 0.10
Chrysene	U	2800	mg/kg	0.10	1.0	6.6	< 0.10	< 0.10	3.1	< 0.10	0.40	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	1.4	8.3	< 0.10	< 0.10	3.8	< 0.10	0.33	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	0.44	2.7	< 0.10	< 0.10	1.1	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	1.2	7.1	< 0.10	< 0.10	3.0	< 0.10	0.18	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	0.63	4.8	< 0.10	< 0.10	2.0	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.10	0.88	< 0.10	< 0.10	0.25	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	0.63	4.1	< 0.10	< 0.10	1.7	< 0.10	< 0.10	< 0.10
Coronene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	13	75	< 2.0	< 2.0	48	< 2.0	5.1	< 0.10
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542	19-35542
Quotation No.:		Chemtest Sample ID.:		911357	911358	911359	911360	911361	911362	911363	911364	19-35542
		Sample Location:		TP-B1	TP-B2	TP-B2	TP-B3	TP-B3	TP-B4	TP-B4	TP-B5	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.00	0.00	1.50	0.00	1.50	0.00	1.50	0.00	
		Bottom Depth (m):		1.50	1.50	3.00	1.50	3.00	1.50	3.00	1.50	
		Date Sampled (\$):		21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD								
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	

Project: PW

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35542	19-35542	19-35542
Quotation No.:		Chemtest Sample ID.:		911365	911366	911367
		Sample Location:		TP-B5	TP-B6	TP-B6
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		1.50	1.50	0.00
		Bottom Depth (m):		3.00	3.00	1.50
		Date Sampled (\$):		21-Oct-2019	21-Oct-2019	21-Oct-2019
		Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	Fibres/Clumps	Fibres/Clumps
Asbestos Identification	U	2192	%	0.001	Chrysotile	Chrysotile
ACM Detection Stage	U	2192		N/A	Stereo Microscopy	Stereo Microscopy
Asbestos by Gravimetry	U	2192	%	0.001	0.001	<0.001
Total Asbestos	N	2192	%	0.001	0.001	<0.001
Moisture	N	2030	%	0.020	14	24
pH	U	2010		N/A	8.5	7.7
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.64	4.1
Sulphur (Elemental)	U	2180	mg/kg	1.0	3.7	14
Cyanide (Total)	U	2300	mg/kg	0.50	<0.50	<0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	9.0	5.2
Sulphate (Total)	U	2430	%	0.010	0.063	0.30
Arsenic	U	2450	mg/kg	1.0	23	35
Barium	U	2450	mg/kg	10	54	170
Cadmium	U	2450	mg/kg	0.10	2.1	1.2
Chromium	U	2450	mg/kg	1.0	15	15
Molybdenum	U	2450	mg/kg	2.0	4.2	4.7
Antimony	N	2450	mg/kg	2.0	<2.0	3.2
Copper	U	2450	mg/kg	0.50	33	120
Mercury	U	2450	mg/kg	0.10	0.17	2.0
Nickel	U	2450	mg/kg	0.50	53	58
Lead	U	2450	mg/kg	0.50	34	410
Selenium	U	2450	mg/kg	0.20	0.33	0.92
Zinc	U	2450	mg/kg	0.50	64	120
Chromium (Trivalent)	N	2490	mg/kg	1.0	15	15
Chromium (Hexavalent)	N	2490	mg/kg	0.50	<0.50	<0.50
Total Organic Carbon	U	2625	%	0.20	0.80	8.1
Mineral Oil	N	2670	mg/kg	10	<10	<10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	<1.0	<1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	<1.0	<1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	<1.0	<1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	<1.0	<1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	<1.0	<1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	<1.0	<1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	<1.0	<1.0

Project: PW

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35542	19-35542	19-35542
Quotation No.:		Chemtest Sample ID.:		911365	911366	911367
		Sample Location:		TP-B5	TP-B6	TP-B6
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		1.50	1.50	0.00
		Bottom Depth (m):		3.00	3.00	1.50
		Date Sampled (\$):		21-Oct-2019	21-Oct-2019	21-Oct-2019
		Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	0.56	1.7
Anthracene	U	2800	mg/kg	0.10	0.13	0.11
Fluoranthene	U	2800	mg/kg	0.10	0.61	1.5
Pyrene	U	2800	mg/kg	0.10	0.52	1.3
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	0.33
Chrysene	U	2800	mg/kg	0.10	< 0.10	0.47
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	0.37
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	0.25
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	0.12
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	0.20
Coronene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0	7.6
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010

Client: O Callaghan Moran & Associates		Chemtest Job No.:	19-35542	19-35542	19-35542
Quotation No.:		Chemtest Sample ID.:	911366	911366	911367
		Sample Location:	TP-B6	TP-B6	TP-B6
		Sample Type:	SOIL	SOIL	SOIL
		Top Depth (m):	1.50	1.50	0.00
		Bottom Depth (m):	3.00	3.00	1.50
		Date Sampled (\$):	21-Oct-2019	21-Oct-2019	21-Oct-2019
		Asbestos Lab:	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD	
PCB 52	U	2815	mg/kg	0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-35542		Landfill Waste Acceptance Criteria Limits											
Chemtest Sample ID: 911356													
Sample Ref:													
Sample ID: TP-B1													
Sample Location: 0.00													
Top Depth(m): 1.50		Inert Waste Landfill		Stable, Non-reactive hazardous waste in non-hazardous Landfill		Hazardous Waste Landfill							
Bottom Depth(m): 21-Oct-2019													
Sampling Date (\$):													
Determinand													
SOP													
Total Organic Carbon		U		%		9.9		3		5		6	
Loss On Ignition		U		%		5.8		--		--		10	
Total BTEX		U		mg/kg		< 0.010		6		--		--	
Total PCBs (7 Congeners)		U		mg/kg		< 0.10		1		--		--	
TPH Total WAC (Mineral Oil)		U		mg/kg		51		500		--		--	
Total (Of 17) PAH's		N		mg/kg		13		100		--		--	
pH		U				8.8		--		>6		--	
Acid Neutralisation Capacity		N		mol/kg		0.16		--		To evaluate		To evaluate	
Eluate Analysis				10:1 Eluate mg/l		10:1 Eluate mg/kg		Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					
Arsenic		U		0.0099		0.099		0.5		2		25	
Barium		U		0.0027		< 0.50		20		100		300	
Cadmium		U		< 0.00010		< 0.010		0.04		1		5	
Chromium		U		0.0057		0.057		0.5		10		70	
Copper		U		0.0028		< 0.050		2		50		100	
Mercury		U		0.00079		0.0079		0.01		0.2		2	
Molybdenum		U		0.0049		< 0.050		0.5		10		30	
Nickel		U		< 0.0010		< 0.050		0.4		10		40	
Lead		U		< 0.0010		< 0.010		0.5		10		50	
Antimony		U		0.0013		0.013		0.06		0.7		5	
Selenium		U		0.0020		0.020		0.1		0.5		7	
Zinc		U		< 0.0010		< 0.50		4		50		200	
Chloride		U		5.0		50		800		15000		25000	
Fluoride		U		0.25		2.5		10		150		500	
Sulphate		U		23		230		1000		20000		50000	
Total Dissolved Solids		N		120		1200		4000		60000		100000	
Phenol Index		U		< 0.030		< 0.30		1		-		-	
Dissolved Organic Carbon		U		17		170		500		800		1000	

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	8.9

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Project ID	Chemtest Job No: 19-35542					Landfill Waste Acceptance Criteria		
	Chemtest Sample ID: 911357					Limits		
	Sample Ref:	Sample ID:	Sample Location:	Sample Depth(m):		Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
	TP-B1							
	1.50							
	3.00							
	21-Oct-2019							
Determinand	SOP	Accred.	Units		10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Total Organic Carbon	2625	U	%		9.6	3	5	6
Loss On Ignition	2610	U	%		13	--	--	10
Total BTEX	2760	U	mg/kg		<0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg		<0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg		320	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg		23	100	--	--
pH	2010	U			7.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg		0.10	--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	0.0063		0.063	0.5	2	25
Barium	1450	U	0.0036		<0.50	20	100	300
Cadmium	1450	U	<0.00010		<0.010	0.04	1	5
Chromium	1450	U	<0.0010		<0.050	0.5	10	70
Copper	1450	U	0.0032		<0.050	2	50	100
Mercury	1450	U	0.00074		0.0074	0.01	0.2	2
Molybdenum	1450	U	0.013		0.13	0.5	10	30
Nickel	1450	U	<0.0010		<0.050	0.4	10	40
Lead	1450	U	<0.0010		<0.010	0.5	10	50
Antimony	1450	U	0.0020		0.020	0.06	0.7	5
Selenium	1450	U	0.0015		0.015	0.1	0.5	7
Zinc	1450	U	<0.0010		<0.50	4	50	200
Chloride	1220	U	1.2		12	800	15000	25000
Fluoride	1220	U	0.22		2.2	10	150	500
Sulphate	1220	U	28		280	1000	20000	50000
Total Dissolved Solids	1020	N	160		1600	4000	60000	100000
Phenol Index	1920	U	<0.030		<0.30	1	-	-
Dissolved Organic Carbon	1610	U	12		120	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	25

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No:	19-35542	Landfill Waste Acceptance Criteria Limits		
Chemtest Sample ID:	911358			
Sample Ref:				
Sample ID:	TP-B2			
Sample Location:	0.00	Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Top Depth(m):	1.50			
Bottom Depth(m):	21-Oct-2019			
Sampling Date (\$):				
Determinand	SOP	Accred.	Units	
Total Organic Carbon	2625	U	%	2.1
Loss On Ignition	2610	U	%	15
Total BTEX	2760	U	mg/kg	< 0.010
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	580
Total (Of 17) PAH's	2800	N	mg/kg	75
pH	2010	U		7.8
Acid Neutralisation Capacity	2015	N	mol/kg	0.18
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg
Arsenic	1450	U	0.0061	0.061
Barium	1450	U	0.0045	< 0.50
Cadmium	1450	U	< 0.00010	< 0.010
Chromium	1450	U	< 0.0010	< 0.050
Copper	1450	U	0.012	0.12
Mercury	1450	U	0.00082	0.0082
Molybdenum	1450	U	0.017	0.17
Nickel	1450	U	0.0015	< 0.050
Lead	1450	U	0.0028	0.028
Antimony	1450	U	0.0052	0.052
Selenium	1450	U	0.0015	0.015
Zinc	1450	U	0.0026	< 0.50
Chloride	1220	U	2.1	21
Fluoride	1220	U	0.095	< 1.0
Sulphate	1220	U	53	530
Total Dissolved Solids	1020	N	140	1400
Phenol Index	1920	U	< 0.030	< 0.30
Dissolved Organic Carbon	1610	U	24	240
			Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	
			0.5	2
			20	100
			0.04	1
			0.5	10
			2	50
			0.01	0.2
			0.5	10
			0.4	10
			0.5	10
			0.06	0.7
			0.1	0.5
			4	50
			800	15000
			10	150
			1000	20000
			4000	60000
			1	-
			500	800
				To evaluate
				To evaluate

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	26

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-35542			Landfill Waste Acceptance Criteria Limits				
Chemtest Sample ID: 911359							
Sample Ref:							
Sample ID: TP-B2							
Sample Location: 1.50							
Top Depth(m): 3.00		10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Bottom Depth(m): 21-Oct-2019							
Sampling Date (\$):							
Determinand							
Units							
Total Organic Carbon		SOP	Accred.	Units	3	5	6
Loss On Ignition		2625	U	%	0.81		
Total BTEX		2610	U	%	3.2	--	10
Total PCBs (7 Congeners)		2760	U	mg/kg	< 0.010	6	--
TPH Total WAC (Mineral Oil)		2815	U	mg/kg	< 0.10	1	--
Total (Of 17) PAH's		2670	U	mg/kg	< 10	500	--
pH		2800	N	mg/kg	< 2.0	100	--
Acid Neutralisation Capacity		2010	U		8.4	--	--
Eluate Analysis		2015	N	mol/kg	0.15	--	To evaluate
Arsenic		1450	U	< 0.0010	< 0.050	0.5	2
Barium		1450	U	0.011	< 0.50	20	100
Cadmium		1450	U	< 0.00010	< 0.010	0.04	1
Chromium		1450	U	< 0.0010	< 0.050	0.5	10
Copper		1450	U	0.0021	< 0.050	2	50
Mercury		1450	U	0.00079	0.0079	0.01	0.2
Molybdenum		1450	U	0.026	0.26	0.5	10
Nickel		1450	U	< 0.0010	< 0.050	0.4	10
Lead		1450	U	< 0.0010	< 0.010	0.5	10
Antimony		1450	U	< 0.0010	< 0.010	0.06	0.7
Selenium		1450	U	< 0.0010	< 0.010	0.1	0.5
Zinc		1450	U	< 0.0010	< 0.50	4	50
Chloride		1220	U	2.3	23	800	15000
Fluoride		1220	U	0.15	1.5	10	150
Sulphate		1220	U	49	490	1000	20000
Total Dissolved Solids		1020	N	140	1400	4000	60000
Phenol Index		1920	U	< 0.030	< 0.30	1	-
Dissolved Organic Carbon		1610	U	22	220	500	800

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	17

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Project ID	Chemtest Job No: 19-35542				10:1 Eluate mg/l	10:1 Eluate mg/kg	Landfill Waste Acceptance Criteria		
	Chemtest Sample ID: 911360	Sample Ref:	Sample ID:	Sample Location:			Limits		
							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample Location:	TP-B3								
Top Depth(m):	0.00								
Bottom Depth(m):	1.50								
Sampling Date (\$):	21-Oct-2019								
Determinand	SOP	Accred.	Units						
Total Organic Carbon	2625	U	%			5.1	3	5	6
Loss On Ignition	2610	U	%			11	--	--	10
Total BTEX	2760	U	mg/kg			<0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg			<0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg			320	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg			7.3	100	--	--
pH	2010	U				7.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.17	--	To evaluate	To evaluate
Eluate Analysis							Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	0.014			0.14	0.5	2	25
Barium	1450	U	0.0034			<0.50	20	100	300
Cadmium	1450	U	<0.00010			<0.010	0.04	1	5
Chromium	1450	U	<0.0010			<0.050	0.5	10	70
Copper	1450	U	0.0032			<0.050	2	50	100
Mercury	1450	U	0.00085			0.0085	0.01	0.2	2
Molybdenum	1450	U	0.0099			0.099	0.5	10	30
Nickel	1450	U	<0.0010			<0.050	0.4	10	40
Lead	1450	U	<0.0010			<0.010	0.5	10	50
Antimony	1450	U	0.0017			0.017	0.06	0.7	5
Selenium	1450	U	0.0053			0.053	0.1	0.5	7
Zinc	1450	U	0.0051			<0.50	4	50	200
Chloride	1220	U	3.5			35	800	15000	25000
Fluoride	1220	U	0.12			1.2	10	150	500
Sulphate	1220	U	58			580	1000	20000	50000
Total Dissolved Solids	1020	N	180			1700	4000	60000	100000
Phenol Index	1920	U	<0.030			<0.30	1	-	-
Dissolved Organic Carbon	1610	U	14			140	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	28

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No:	19-35542	Landfill Waste Acceptance Criteria Limits		
Chemtest Sample ID:	911361			
Sample Ref:				
Sample ID:	TP-B3			
Sample Location:	1.50	Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Top Depth(m):	3.00			
Bottom Depth(m):	21-Oct-2019			
Sampling Date (\$):				
Determinand	SOP	Accred.	Units	
Total Organic Carbon	2625	U	%	1.0
Loss On Ignition	2610	U	%	4.3
Total BTEX	2760	U	mg/kg	< 0.010
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0
pH	2010	U		7.9
Acid Neutralisation Capacity	2015	N	mol/kg	0.13
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg
Arsenic	1450	U	0.0025	< 0.050
Barium	1450	U	0.0014	< 0.50
Cadmium	1450	U	< 0.00010	< 0.010
Chromium	1450	U	< 0.0010	< 0.050
Copper	1450	U	0.0013	< 0.050
Mercury	1450	U	0.00091	0.0091
Molybdenum	1450	U	0.013	0.13
Nickel	1450	U	< 0.0010	< 0.050
Lead	1450	U	< 0.0010	< 0.010
Antimony	1450	U	< 0.0010	< 0.010
Selenium	1450	U	0.0020	0.020
Zinc	1450	U	0.0016	< 0.50
Chloride	1220	U	1.9	19
Fluoride	1220	U	0.17	1.7
Sulphate	1220	U	27	270
Total Dissolved Solids	1020	N	110	1100
Phenol Index	1920	U	< 0.030	< 0.30
Dissolved Organic Carbon	1610	U	22	220
			Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	
			0.5	2
			20	100
			0.04	1
			0.5	10
			2	50
			0.01	0.2
			0.5	10
			0.4	10
			0.5	10
			0.06	0.7
			0.1	0.5
			4	50
			800	15000
			10	150
			1000	20000
			4000	60000
			1	-
			500	800
				To evaluate
				To evaluate

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	20

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-35542						Landfill Waste Acceptance Criteria Limits		
Chemtest Sample ID: 911362								
Sample Ref:								
Sample ID: TP-B4								
Sample Location: 0.00								
Top Depth(m): 1.50								
Bottom Depth(m): 21-Oct-2019								
Sampling Date (\$):								
Determinand	SOP	Accred.	Units					
Total Organic Carbon	2625	U	%	11	3	5	6	
Loss On Ignition	2610	U	%	12	--	--	10	
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--	
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--	
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	930	500	--	--	
Total (Of 17) PAH's	2800	N	mg/kg	48	100	--	--	
pH	2010	U		7.7	--	>6	--	
Acid Neutralisation Capacity	2015	N	mol/kg	0.19	--	To evaluate	To evaluate	
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic	1450	U	0.011	0.11	0.5	2	25	
Barium	1450	U	0.0039	< 0.50	20	100	300	
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5	
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70	
Copper	1450	U	0.0037	< 0.050	2	50	100	
Mercury	1450	U	0.0010	0.010	0.01	0.2	2	
Molybdenum	1450	U	0.0089	0.089	0.5	10	30	
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40	
Lead	1450	U	0.0012	0.012	0.5	10	50	
Antimony	1450	U	0.0031	0.031	0.06	0.7	5	
Selenium	1450	U	0.0024	0.024	0.1	0.5	7	
Zinc	1450	U	0.0023	< 0.50	4	50	200	
Chloride	1220	U	< 1.0	< 10	800	15000	25000	
Fluoride	1220	U	0.14	1.4	10	150	500	
Sulphate	1220	U	81	810	1000	20000	50000	
Total Dissolved Solids	1020	N	170	1700	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-	
Dissolved Organic Carbon	1610	U	12	120	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	32

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No:	19-35542	Landfill Waste Acceptance Criteria Limits Inert Waste Landfill Stable, Non-reactive hazardous waste in non-hazardous Landfill Hazardous Waste Landfill		
Chemtest Sample ID:	911363			
Sample Ref:				
Sample ID:	TP-B4			
Sample Location:	1.50			
Top Depth(m):	3.00			
Bottom Depth(m):	21-Oct-2019			
Sampling Date (\$):				
Determinand	SOP	Accred.	Units	
Total Organic Carbon	2625	U	%	0.49
Loss On Ignition	2610	U	%	2.0
Total BTEX	2760	U	mg/kg	< 0.010
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0
pH	2010	U		8.5
Acid Neutralisation Capacity	2015	N	mol/kg	0.086
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg
Arsenic	1450	U	0.0018	< 0.050
Barium	1450	U	0.0011	< 0.50
Cadmium	1450	U	< 0.00010	< 0.010
Chromium	1450	U	< 0.0010	< 0.050
Copper	1450	U	< 0.0010	< 0.050
Mercury	1450	U	< 0.00050	< 0.0050
Molybdenum	1450	U	0.0098	0.098
Nickel	1450	U	< 0.0010	< 0.050
Lead	1450	U	< 0.0010	< 0.010
Antimony	1450	U	< 0.0010	< 0.010
Selenium	1450	U	0.0025	0.025
Zinc	1450	U	< 0.0010	< 0.50
Chloride	1220	U	< 1.0	< 10
Fluoride	1220	U	0.13	1.3
Sulphate	1220	U	11	110
Total Dissolved Solids	1020	N	78	780
Phenol Index	1920	U	< 0.030	< 0.30
Dissolved Organic Carbon	1610	U	49	490
Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg				
			0.5	2
			20	100
			0.04	1
			0.5	10
			2	50
			0.01	0.2
			0.5	10
			0.4	10
			0.5	10
			0.06	0.7
			0.1	0.5
			4	50
			800	15000
			10	150
			1000	20000
			4000	60000
			1	-
			500	800
				1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-35542					Landfill Waste Acceptance Criteria Limits					
Chemtest Sample ID: 911364										
Sample Ref:										
Sample ID: TP-B5										
Sample Location: 0.00										
Top Depth(m): 1.50				10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill		
Bottom Depth(m): 21-Oct-2019										
Sampling Date (\$):										
Determinand										
Units										
SOP										
Accred.										
Total Organic Carbon				2625	U	%	6.4	3	5	6
Loss On Ignition				2610	U	%	9.4	--	--	10
Total BTEX				2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)				2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)				2670	U	mg/kg	50	500	--	--
Total (Of 17) PAH's				2800	N	mg/kg	5.1	100	--	--
pH				2010	U		8.9	--	>6	--
Acid Neutralisation Capacity				2015	N	mol/kg	0.087	--	To evaluate	To evaluate
Eluate Analysis						10:1 Eluate mg/l				
Arsenic				1450	U	0.019	0.19	0.5	2	25
Barium				1450	U	0.0012	< 0.50	20	100	300
Cadmium				1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium				1450	U	0.0027	< 0.050	0.5	10	70
Copper				1450	U	0.0021	< 0.050	2	50	100
Mercury				1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum				1450	U	0.013	0.13	0.5	10	30
Nickel				1450	U	< 0.0010	< 0.050	0.4	10	40
Lead				1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony				1450	U	0.0027	0.027	0.06	0.7	5
Selenium				1450	U	0.0041	0.041	0.1	0.5	7
Zinc				1450	U	< 0.0010	< 0.50	4	50	200
Chloride				1220	U	2.8	28	800	15000	25000
Fluoride				1220	U	0.21	2.1	10	150	500
Sulphate				1220	U	53	530	1000	20000	50000
Total Dissolved Solids				1020	N	120	1200	4000	60000	100000
Phenol Index				1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon				1610	U	21	210	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	21

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-35542		Landfill Waste Acceptance Criteria Limits											
Chemtest Sample ID: 911365													
Sample Ref:													
Sample ID: TP-B5													
Sample Location: 1.50													
Top Depth(m): 3.00		Inert Waste Landfill		Stable, Non-reactive hazardous waste in non-hazardous Landfill		Hazardous Waste Landfill							
Bottom Depth(m): 21-Oct-2019													
Sampling Date (\$):													
Determinand													
SOP													
Total Organic Carbon		U		%		0.80		3		5		6	
Loss On Ignition		U		%		2.5		--		--		10	
Total BTEX		U		mg/kg		< 0.010		6		--		--	
Total PCBs (7 Congeners)		U		mg/kg		< 0.10		1		--		--	
TPH Total WAC (Mineral Oil)		U		mg/kg		< 10		500		--		--	
Total (Of 17) PAH's		N		mg/kg		< 2.0		100		--		--	
pH		U				8.5		--		>6		--	
Acid Neutralisation Capacity		N		mol/kg		0.038		--		To evaluate		To evaluate	
Eluate Analysis				10:1 Eluate mg/l		10:1 Eluate mg/kg		Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					
Arsenic		U		< 0.0010		< 0.050		0.5		2		25	
Barium		U		< 0.0010		< 0.50		20		100		300	
Cadmium		U		< 0.00010		< 0.010		0.04		1		5	
Chromium		U		< 0.0010		< 0.050		0.5		10		70	
Copper		U		< 0.0010		< 0.050		2		50		100	
Mercury		U		< 0.00050		< 0.0050		0.01		0.2		2	
Molybdenum		U		0.014		0.14		0.5		10		30	
Nickel		U		< 0.0010		< 0.050		0.4		10		40	
Lead		U		< 0.0010		< 0.010		0.5		10		50	
Antimony		U		< 0.0010		< 0.010		0.06		0.7		5	
Selenium		U		< 0.0010		< 0.010		0.1		0.5		7	
Zinc		U		< 0.0010		< 0.50		4		50		200	
Chloride		U		< 1.0		< 10		800		15000		25000	
Fluoride		U		0.20		2.0		10		150		500	
Sulphate		U		7.5		75		1000		20000		50000	
Total Dissolved Solids		N		72		710		4000		60000		100000	
Phenol Index		U		< 0.030		< 0.30		1		-		-	
Dissolved Organic Carbon		U		25		250		500		800		1000	

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No: 19-35542		19-35542 911366				Landfill Waste Acceptance Criteria Limits				
Chemtest Sample ID: 911366										
Sample Ref:										
Sample ID: TP-B6										
Sample Location: Top Depth(m): Bottom Depth(m): Sampling Date (\$):										
21-Oct-2019										
Determinand	SOP	Accred.	Units					Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon	2625	U	%	8.1				3	5	6
Loss On Ignition	2610	U	%	14				--	--	10
Total BTEX	2760	U	mg/kg	< 0.010				6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10				1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10				500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	7.6				100	--	--
pH	2010	U		7.7				--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.030				--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg					
Arsenic	1450	U	0.020	0.20	0.5	2	25			
Barium	1450	U	0.0018	< 0.50	20	100	300			
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5			
Chromium	1450	U	0.0015	< 0.050	0.5	10	70			
Copper	1450	U	0.0027	< 0.050	2	50	100			
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2			
Molybdenum	1450	U	0.0089	0.089	0.5	10	30			
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40			
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50			
Antimony	1450	U	0.0043	0.043	0.06	0.7	5			
Selenium	1450	U	0.0061	0.061	0.1	0.5	7			
Zinc	1450	U	< 0.0010	< 0.50	4	50	200			
Chloride	1220	U	2.6	26	800	15000	25000			
Fluoride	1220	U	0.16	1.6	10	150	500			
Sulphate	1220	U	50	500	1000	20000	50000			
Total Dissolved Solids	1020	N	130	1300	4000	60000	100000			
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-			
Dissolved Organic Carbon	1610	U	11	110	500	800	1000			

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	24

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: PW

Chemtest Job No:	19-35542	Landfill Waste Acceptance Criteria Limits		
Chemtest Sample ID:	911367			
Sample Ref:				
Sample ID:	TP-B6			
Sample Location:	0.00	Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Top Depth(m):	1.50			
Bottom Depth(m):	21-Oct-2019			
Sampling Date (\$):				
Determinand	SOP	Accred.	Units	
Total Organic Carbon	2625	U	%	5.7
Loss On Ignition	2610	U	%	11
Total BTEX	2760	U	mg/kg	< 0.010
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0
pH	2010	U		8.1
Acid Neutralisation Capacity	2015	N	mol/kg	0.028
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg
Arsenic	1450	U	0.0099	0.099
Barium	1450	U	0.0020	< 0.50
Cadmium	1450	U	< 0.00010	< 0.010
Chromium	1450	U	< 0.0010	< 0.050
Copper	1450	U	0.0015	< 0.050
Mercury	1450	U	< 0.00050	< 0.0050
Molybdenum	1450	U	0.0095	0.095
Nickel	1450	U	< 0.0010	< 0.050
Lead	1450	U	< 0.0010	< 0.010
Antimony	1450	U	0.0012	0.012
Selenium	1450	U	0.0015	0.015
Zinc	1450	U	< 0.0010	< 0.50
Chloride	1220	U	1.7	17
Fluoride	1220	U	0.16	1.6
Sulphate	1220	U	11	110
Total Dissolved Solids	1020	N	140	1300
Phenol Index	1920	U	< 0.030	< 0.30
Dissolved Organic Carbon	1610	U	17	170
			Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	
			0.5	2
			20	100
			0.04	1
			0.5	10
			2	50
			0.01	0.2
			0.5	10
			0.4	10
			0.5	10
			0.06	0.7
			0.1	0.5
			4	50
			800	15000
			10	150
			1000	20000
			4000	60000
			1	-
			500	800
				To evaluate
				To evaluate

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	29

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils (Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44 Aromatics: >C5–C7, >C7–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44	Dichloromethane extraction / GCxGC FID detection

SOP	Title	Parameters included	Method summary
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"
- \$ This information has been supplied by the client and can affect the integrity of test data.

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



Amended Report

Report No.: 19-35555-2

Initial Date of Issue: 31-Oct-2019 **Date of Re-Issue:** 12-Nov-2019

Client O Callaghan Moran & Associates

Client Address: 15 Melbourne Business Park
Model Farm Road
Co. Cork
IRELAND

Contact(s): Conor McGrath

Project BG PW

Quotation No.: **Date Received:** 23-Oct-2019

Order No.: **Date Instructed:** 23-Oct-2019

No. of Samples: 7

Turnaround (Wkdays): 5 **Results Due:** 29-Oct-2019

Date Approved: 31-Oct-2019

Approved By:


Details: Glynn Harvey, Laboratory Manager

Results - Water

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35555	19-35555	19-35555	19-35555	19-35555	19-35555	19-35555
Quotation No.:		Chemtest Sample ID.:		911468	911469	911470	911471	911472	911473	911474
		Sample Location:		MW-1	MW-2	MW-3	BH-9	BH-10	BH-11	BH-16
		Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Date Sampled (\$):		22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019
Determinand	Accred.	SOP	Units	LOD						
	U	1010								
pH	U	1220	mg/l	N/A	8.5	8.0	8.0	8.0	8.0	8.0
Chloride	U	1220	mg/l	1.0	32	18	22	19	41	19
Ammonium	U	1220	mg/l	0.050	0.45	0.16	0.16	0.14	0.31	0.15
Nitrate	U	1220	mg/l	0.50	< 0.50	14	20	22	15	12
Sulphate	U	1220	mg/l	1.0	60	110	110	110	410	110
Sulphide	U	1325	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium	U	1415	mg/l	0.50	6.8	2.9	2.0	1.9	2.0	3.0
Sodium	U	1415	mg/l	0.50	25	25	24	21	21	26
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Boron (Dissolved)	U	1450	µg/l	20	160	140	140	150	140	130
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	1.9	2.8	5.1	6.0	3.2	3.4
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	4.2	4.0	5.3	4.7	5.6	5.7
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	580	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	5.0	1300	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Aromatic Hydrocarbons	N	1675	µg/l	10	1300	< 10	< 10	< 10	< 10	< 10
Total Petroleum Hydrocarbons	N	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Water

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35555	19-35555	19-35555	19-35555	19-35555	19-35555	19-35555
Quotation No.:		Chemtest Sample ID.:		911469	911470	911471	911472	911473	911474	19-35555
		Sample Location:		MW-2	MW-3	BH-9	BH-10	BH-11	BH-16	
		Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	
		Date Sampled (\$):		22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019
Determinand	Accred.	SOP	Units	LOD						
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	N	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	µg/l	2.0	< 2.0	17	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	U	1760	µg/l	1.0	< 1.0	29	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
Bromodichloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
Toluene	U	1760	µg/l	1.0	< 1.0	4.9	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Results - Water

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35555	19-35555	19-35555	19-35555	19-35555	19-35555	19-35555
Quotation No.:		Chemtest Sample ID.:		911468	911469	911470	911471	911472	911473	911474
		Sample Location:		MW-1	MW-2	MW-3	BH-9	BH-10	BH-11	BH-16
		Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Date Sampled (\$):		22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019
Determinand	Accred.	SOP	Units	LOD						
		1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
Dibromochloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	N	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50	< 50	< 50	< 50	< 50	< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50	< 50	< 50	< 50	< 50	< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N-dimethyl-pphenylenediamine.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5-C6, >C6-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35-C44 Aromatics: >C5-C7, >C7-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35-C44	Pentane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"
- \$ This information has been supplied by the client and can affect the integrity of test data.

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix 5

Groundwater Laboratory Report



Amended Report

Report No.: 19-35555-2

Initial Date of Issue: 31-Oct-2019 **Date of Re-Issue:** 12-Nov-2019

Client O Callaghan Moran & Associates

Client Address: 15 Melbourne Business Park
Model Farm Road
Co. Cork
IRELAND

Contact(s): Conor McGrath

Project BG PW

Quotation No.: **Date Received:** 23-Oct-2019

Order No.: **Date Instructed:** 23-Oct-2019

No. of Samples: 7

Turnaround (Wkdays): 5 **Results Due:** 29-Oct-2019

Date Approved: 31-Oct-2019

Approved By:


Details: Glynn Harvey, Laboratory Manager

Results - Water

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35555	19-35555	19-35555	19-35555	19-35555	19-35555	19-35555
Quotation No.:		Chemtest Sample ID.:		911469	911470	911471	911472	911473	911474	19-35555
		Sample Location:		MW-2	MW-3	BH-9	BH-10	BH-11	BH-16	
		Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	
		Date Sampled (\$):		22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019
Determinand	Accred.	SOP	Units	LOD						
	U	1010								
pH	U	1220	mg/l	N/A	8.5	8.0	8.0	8.0	8.0	8.0
Chloride	U	1220	mg/l	1.0	32	18	19	41	19	
Ammonium	U	1220	mg/l	0.050	0.45	0.16	0.14	0.31	0.15	
Nitrate	U	1220	mg/l	0.50	< 0.50	14	20	15	12	
Sulphate	U	1220	mg/l	1.0	60	110	110	410	110	
Sulphide	U	1325	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	
Potassium	U	1415	mg/l	0.50	6.8	2.9	1.9	2.0	3.0	
Sodium	U	1415	mg/l	0.50	25	25	21	21	26	
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Boron (Dissolved)	U	1450	µg/l	20	160	140	150	140	130	
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Nickel (Dissolved)	U	1450	µg/l	1.0	1.9	2.8	6.0	3.2	3.4	
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Zinc (Dissolved)	U	1450	µg/l	1.0	4.2	4.0	4.7	5.6	5.7	
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	580	< 5.0	< 5.0	< 5.0	< 5.0	
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aromatic TPH >C35-C44	N	1675	µg/l	5.0	1300	< 5.0	< 5.0	< 5.0	< 5.0	
Total Aromatic Hydrocarbons	N	1675	µg/l	10	720	< 10	< 10	< 10	< 10	
Total Petroleum Hydrocarbons	N	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	

Results - Water

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35555	19-35555	19-35555	19-35555	19-35555	19-35555	19-35555
Quotation No.:		Chemtest Sample ID.:		911469	911470	911471	911472	911473	911474	19-35555
		Sample Location:		MW-2	MW-3	BH-9	BH-10	BH-11	BH-16	
		Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	
		Date Sampled (\$):		22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019
Determinand	Accred.	SOP	Units	LOD						
		1700	µg/l	0.10						
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzof[<i>a</i>]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	N	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzof[<i>b</i>]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzof[<i>k</i>]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzof[<i>a</i>]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3- <i>c,d</i>)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz[<i>a,h</i>]Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzof[<i>g,h,i</i>]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	µg/l	2.0	< 2.0	17	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	U	1760	µg/l	1.0	< 1.0	29	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
Bromodichloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
Toluene	U	1760	µg/l	1.0	< 1.0	4.9	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Results - Water

Client: O Callaghan Moran & Associates		Chemtest Job No.:		19-35555	19-35555	19-35555	19-35555	19-35555	19-35555	19-35555
Quotation No.:		Chemtest Sample ID.:		911468	911469	911470	911471	911472	911473	911474
		Sample Location:		MW-1	MW-2	MW-3	BH-9	BH-10	BH-11	BH-16
		Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Date Sampled (\$):		22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019	22-Oct-2019
Determinand	Accred.	SOP	Units	LOD						
		1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
Dibromochloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	N	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50	< 50	< 50	< 50	< 50	< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50	< 50	< 50	< 50	< 50	< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N-dimethyl-pphenylenediamine.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44 Aromatics: >C5–C7, >C7–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44	Pentane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"
- \$ This information has been supplied by the client and can affect the integrity of test data.

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix 6

Waste Classification Reports

Waste Classification Report



DFWDJ-YPFL5-SG8X4

Job name

19-245 (Player Wills)

Description/Comments

Project

19-245

Site

Player Wills

Related Documents

#	Name	Description
None		

Waste Stream Template

O'Callaghan Moran Waste Stream

Classified by

Name:
Austin Hynes
Date:
12 Jul 2019 11:25 GMT
Telephone:
021 4345366

Company:
O'Callaghan Moran and Associates
Unit 15 Melbourne Business Park
Model Farm Road
Cork

Report

Created by: Austin Hynes
Created date: 12 Jul 2019 11:25 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	TP-16	0.0-1.0	Non Hazardous		3
2	TP-16[2]	1.0-2.0	Non Hazardous		6
3	TP-17	0.0-1.0	Non Hazardous		9
4	TP-17[2]	1.0-2.0	Non Hazardous		12
5	TP-18	0.0-1.0	Non Hazardous		15
6	TP-18[2]	1.0-2.0	Non Hazardous		18
7	TP-19	0.0-1.0	Non Hazardous		21
8	TP-19[2]	1.0-2.0	Non Hazardous		24
9	TP-20	0.0-1.0	Non Hazardous		27
10	TP-20[2]	1.0-2.0	Non Hazardous		30
11	TP-20[3]	2.0-3.0	Non Hazardous		33



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#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
12	TP-22	0.0-1.0	Non Hazardous		36
13	TP-22[2]	1.0-2.0	Non Hazardous		39
14	TP-23	0.0-1.0	Non Hazardous		42
15	TP-23[2]	1.0-2.0	Non Hazardous		45
16	TP-23[3]	2.0-3.0	Non Hazardous		48
17	TP-25	0.0-1.0	Non Hazardous		51
18	TP-25[2]	1.0-2.0	Non Hazardous		54

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	57
Appendix B: Rationale for selection of metal species	58
Appendix C: Version	59

Classification of sample: TP-16

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

Sample details

Sample Name:	LoW Code:	
TP-16	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
5.9%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 5.9% 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	antimony { antimony trioxide }				<2 mg/kg	1.197	<2.394 mg/kg	<0.000239 %		<LOD
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				24 mg/kg	1.32	31.688 mg/kg	0.00317 %		
	033-003-00-0	215-481-4	1327-53-3							
3	boron { diboron trioxide; boric oxide }				<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
	005-008-00-8	215-125-8	1303-86-2							
4	cadmium { cadmium oxide }				0.62 mg/kg	1.142	0.708 mg/kg	0.0000708 %		
	048-002-00-0	215-146-2	1306-19-0							
5	chromium in chromium(III) compounds { chromium(III) oxide }				37 mg/kg	1.462	54.078 mg/kg	0.00541 %		
		215-160-9	1308-38-9							
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
7	copper { dicopper oxide; copper (I) oxide }				57 mg/kg	1.126	64.176 mg/kg	0.00642 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	22 mg/kg	1.56	34.316 mg/kg	0.0022 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	molybdenum { molybdenum(VI) oxide }				<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<LOD
	042-001-00-9	215-204-7	1313-27-5							
11	nickel { nickel chromate }				28 mg/kg	2.976	83.335 mg/kg	0.00833 %		
	028-035-00-7	238-766-5	14721-18-7							
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
13	zinc { zinc chromate }				63 mg/kg	2.774	174.771 mg/kg	0.0175 %		
	024-007-00-3									
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
21	pH				8.8 pH		8.8 pH	8.8 pH			
			pH								
22	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
26	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
27	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
28	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
29	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
30	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.0452 %		

Key

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

Classification of sample: TP-16[2]

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

Sample details

Sample Name:	LoW Code:
TP-16[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-2.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
13%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **13% 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	antimony { antimony trioxide }				2.2	mg/kg	1.197	2.634	mg/kg	0.000263 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				22	mg/kg	1.32	29.047	mg/kg	0.0029 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				<0.4	mg/kg	3.22	<1.288	mg/kg	<0.000129 %		<LOD
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				2.2	mg/kg	1.142	2.513	mg/kg	0.000251 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				17	mg/kg	1.462	24.846	mg/kg	0.00248 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				38	mg/kg	1.126	42.784	mg/kg	0.00428 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	49	mg/kg	1.56	76.431	mg/kg	0.0049 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.12	mg/kg	1.353	0.162	mg/kg	0.0000162 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				4.9	mg/kg	1.5	7.351	mg/kg	0.000735 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				56	mg/kg	2.976	166.671	mg/kg	0.0167 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.95	mg/kg	2.554	2.426	mg/kg	0.000243 %		
	034-002-00-8											
13	zinc { zinc chromate }				94	mg/kg	2.774	260.77	mg/kg	0.0261 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene 601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene 601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH PH				8.5 pH		8.5 pH	8.5 pH		
22	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	acenaphthylene 205-917-1		208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene 201-469-6		83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	fluorene 201-695-5		86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	phenanthrene 201-581-5		85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	anthracene 204-371-1		120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	fluoranthene 205-912-4		206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	pyrene 204-927-3		129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	indeno[123-cd]pyrene 205-893-2		193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	benzo[ghi]perylene 205-883-8		191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	phenol 604-001-00-2	203-632-7	108-95-2		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0603 %		



Key

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

Classification of sample: TP-17

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

Sample details

Sample Name:	LoW Code:	
TP-17	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
10%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 10% 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	antimony { antimony trioxide }				8.7 mg/kg	1.197	10.415 mg/kg	0.00104 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				33 mg/kg	1.32	43.571 mg/kg	0.00436 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				1.8 mg/kg	3.22	5.796 mg/kg	0.00058 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				1 mg/kg	1.142	1.142 mg/kg	0.000114 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				38 mg/kg	1.462	55.539 mg/kg	0.00555 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				95 mg/kg	1.126	106.959 mg/kg	0.0107 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	300 mg/kg	1.56	467.945 mg/kg	0.03 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				0.92 mg/kg	1.353	1.245 mg/kg	0.000125 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				3.6 mg/kg	1.5	5.401 mg/kg	0.00054 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				57 mg/kg	2.976	169.647 mg/kg	0.017 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				0.78 mg/kg	2.554	1.992 mg/kg	0.000199 %			
	034-002-00-8										
13	zinc { zinc chromate }				250 mg/kg	2.774	693.537 mg/kg	0.0694 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				150 mg/kg		150 mg/kg	0.015 %			
			TPH								



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
21	pH				8.2 pH		8.2 pH	8.2 pH			
			PH								
22	naphthalene				0.64 mg/kg		0.64 mg/kg	0.000064 %			
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				0.12 mg/kg		0.12 mg/kg	0.000012 %			
		205-917-1	208-96-8								
24	acenaphthene				1.2 mg/kg		1.2 mg/kg	0.00012 %			
		201-469-6	83-32-9								
25	fluorene				0.77 mg/kg		0.77 mg/kg	0.000077 %			
		201-695-5	86-73-7								
26	phenanthrene				7.4 mg/kg		7.4 mg/kg	0.00074 %			
		201-581-5	85-01-8								
27	anthracene				1.2 mg/kg		1.2 mg/kg	0.00012 %			
		204-371-1	120-12-7								
28	fluoranthene				8.1 mg/kg		8.1 mg/kg	0.00081 %			
		205-912-4	206-44-0								
29	pyrene				7 mg/kg		7 mg/kg	0.0007 %			
		204-927-3	129-00-0								
30	benzo[a]anthracene				3.7 mg/kg		3.7 mg/kg	0.00037 %			
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				4.1 mg/kg		4.1 mg/kg	0.00041 %			
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				4.3 mg/kg		4.3 mg/kg	0.00043 %			
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				1.7 mg/kg		1.7 mg/kg	0.00017 %			
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				3.3 mg/kg		3.3 mg/kg	0.00033 %			
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				1.8 mg/kg		1.8 mg/kg	0.00018 %			
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				0.35 mg/kg		0.35 mg/kg	0.000035 %			
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				2 mg/kg		2 mg/kg	0.0002 %			
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.16 %		

Key

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

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 Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.015%)

Classification of sample: TP-17[2]

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

Sample details

Sample Name:	LoW Code:
TP-17[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-2.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
20%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 20% 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	antimony { antimony trioxide }				5	mg/kg	1.197	5.986	mg/kg	0.000599 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				48	mg/kg	1.32	63.376	mg/kg	0.00634 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				2.5	mg/kg	3.22	8.05	mg/kg	0.000805 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.1	mg/kg	1.142	1.257	mg/kg	0.000126 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				28	mg/kg	1.462	40.924	mg/kg	0.00409 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				200	mg/kg	1.126	225.178	mg/kg	0.0225 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	680	mg/kg	1.56	1060.674	mg/kg	0.068 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				3.7	mg/kg	1.353	5.008	mg/kg	0.000501 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				6.5	mg/kg	1.5	9.751	mg/kg	0.000975 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				68	mg/kg	2.976	202.386	mg/kg	0.0202 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.3	mg/kg	2.554	3.32	mg/kg	0.000332 %		
	034-002-00-8											
13	zinc { zinc chromate }				240	mg/kg	2.774	665.795	mg/kg	0.0666 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				98	mg/kg		98	mg/kg	0.0098 %		
			TPH									



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene 601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene 601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH PH				8.2 pH		8.2 pH	8.2 pH		
22	naphthalene 601-052-00-2	202-049-5	91-20-3		0.68 mg/kg		0.68 mg/kg	0.000068 %		
23	acenaphthylene 205-917-1		208-96-8		0.51 mg/kg		0.51 mg/kg	0.000051 %		
24	acenaphthene 201-469-6		83-32-9		1.6 mg/kg		1.6 mg/kg	0.00016 %		
25	fluorene 201-695-5		86-73-7		0.95 mg/kg		0.95 mg/kg	0.000095 %		
26	phenanthrene 201-581-5		85-01-8		10 mg/kg		10 mg/kg	0.001 %		
27	anthracene 204-371-1		120-12-7		2.5 mg/kg		2.5 mg/kg	0.00025 %		
28	fluoranthene 205-912-4		206-44-0		16 mg/kg		16 mg/kg	0.0016 %		
29	pyrene 204-927-3		129-00-0		14 mg/kg		14 mg/kg	0.0014 %		
30	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		7.3 mg/kg		7.3 mg/kg	0.00073 %		
31	chrysene 601-048-00-0	205-923-4	218-01-9		9.3 mg/kg		9.3 mg/kg	0.00093 %		
32	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		8.9 mg/kg		8.9 mg/kg	0.00089 %		
33	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		3.9 mg/kg		3.9 mg/kg	0.00039 %		
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		7.2 mg/kg		7.2 mg/kg	0.00072 %		
35	indeno[123-cd]pyrene 205-893-2		193-39-5		4.3 mg/kg		4.3 mg/kg	0.00043 %		
36	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		0.76 mg/kg		0.76 mg/kg	0.000076 %		
37	benzo[ghi]perylene 205-883-8		191-24-2		4.3 mg/kg		4.3 mg/kg	0.00043 %		
38	phenol 604-001-00-2	203-632-7	108-95-2		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.21 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

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

Classification of sample: TP-18

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

Sample details

Sample Name:	LoW Code:	
TP-18	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
23%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 23% 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	antimony { antimony trioxide }				5.5 mg/kg	1.197	6.584 mg/kg	0.000658 %		
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				50 mg/kg	1.32	66.016 mg/kg	0.0066 %		
	033-003-00-0	215-481-4	1327-53-3							
3	boron { diboron trioxide; boric oxide }				4.6 mg/kg	3.22	14.811 mg/kg	0.00148 %		
	005-008-00-8	215-125-8	1303-86-2							
4	cadmium { cadmium oxide }				1.1 mg/kg	1.142	1.257 mg/kg	0.000126 %		
	048-002-00-0	215-146-2	1306-19-0							
5	chromium in chromium(III) compounds { chromium(III) oxide }				25 mg/kg	1.462	36.539 mg/kg	0.00365 %		
		215-160-9	1308-38-9							
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
7	copper { dicopper oxide; copper (I) oxide }				200 mg/kg	1.126	225.178 mg/kg	0.0225 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	620 mg/kg	1.56	967.085 mg/kg	0.062 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				2.9 mg/kg	1.353	3.925 mg/kg	0.000393 %		
	080-010-00-X	231-299-8	7487-94-7							
10	molybdenum { molybdenum(VI) oxide }				7.7 mg/kg	1.5	11.551 mg/kg	0.00116 %		
	042-001-00-9	215-204-7	1313-27-5							
11	nickel { nickel chromate }				71 mg/kg	2.976	211.315 mg/kg	0.0211 %		
	028-035-00-7	238-766-5	14721-18-7							
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.6 mg/kg	2.554	4.086 mg/kg	0.000409 %		
	034-002-00-8									
13	zinc { zinc chromate }				270 mg/kg	2.774	749.02 mg/kg	0.0749 %		
	024-007-00-3									
14	TPH (C6 to C40) petroleum group				120 mg/kg		120 mg/kg	0.012 %		
			TPH							



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
21	pH				8.1 pH		8.1 pH	8.1 pH			
			PH								
22	naphthalene				1.1 mg/kg		1.1 mg/kg	0.00011 %			
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				0.1 mg/kg		0.1 mg/kg	0.00001 %			
		205-917-1	208-96-8								
24	acenaphthene				1.6 mg/kg		1.6 mg/kg	0.00016 %			
		201-469-6	83-32-9								
25	fluorene				1 mg/kg		1 mg/kg	0.0001 %			
		201-695-5	86-73-7								
26	phenanthrene				12 mg/kg		12 mg/kg	0.0012 %			
		201-581-5	85-01-8								
27	anthracene				1.8 mg/kg		1.8 mg/kg	0.00018 %			
		204-371-1	120-12-7								
28	fluoranthene				14 mg/kg		14 mg/kg	0.0014 %			
		205-912-4	206-44-0								
29	pyrene				13 mg/kg		13 mg/kg	0.0013 %			
		204-927-3	129-00-0								
30	benzo[a]anthracene				6.5 mg/kg		6.5 mg/kg	0.00065 %			
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				7.9 mg/kg		7.9 mg/kg	0.00079 %			
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				7.7 mg/kg		7.7 mg/kg	0.00077 %			
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				3.3 mg/kg		3.3 mg/kg	0.00033 %			
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				6.4 mg/kg		6.4 mg/kg	0.00064 %			
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				3.6 mg/kg		3.6 mg/kg	0.00036 %			
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				0.72 mg/kg		0.72 mg/kg	0.000072 %			
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				3.6 mg/kg		3.6 mg/kg	0.00036 %			
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
40	asbestos				1 mg/kg		1 mg/kg	0.0001 %			
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
			77536-68-6 77536-67-5 12001-29-5							
Total:								0.216 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.012%)

Classification of sample: TP-18[2]

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

Sample details

Sample Name:	LoW Code:
TP-18[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-2.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
15%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **15% No Moisture Correction applied (MC)**

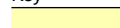
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	antimony { antimony trioxide }				<2 mg/kg	1.197	<2.394 mg/kg	<0.000239 %			<LOD
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				19 mg/kg	1.32	25.086 mg/kg	0.00251 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %			<LOD
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				2.1 mg/kg	1.142	2.399 mg/kg	0.00024 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				13 mg/kg	1.462	19 mg/kg	0.0019 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				26 mg/kg	1.126	29.273 mg/kg	0.00293 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	18 mg/kg	1.56	28.077 mg/kg	0.0018 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				4.1 mg/kg	1.5	6.151 mg/kg	0.000615 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				39 mg/kg	2.976	116.074 mg/kg	0.0116 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				3.6 mg/kg	2.554	9.193 mg/kg	0.000919 %			
	034-002-00-8										
13	zinc { zinc chromate }				67 mg/kg	2.774	185.868 mg/kg	0.0186 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene	601-020-00-8	200-753-7	71-43-2	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene	601-021-00-3	203-625-9	108-88-3	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH			PH	8.7 pH		8.7 pH	8.7 pH		
22	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	acenaphthylene		205-917-1	208-96-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene		201-469-6	83-32-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	fluorene		201-695-5	86-73-7	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	phenanthrene		201-581-5	85-01-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	anthracene		204-371-1	120-12-7	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	fluoranthene		205-912-4	206-44-0	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	pyrene		204-927-3	129-00-0	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	indeno[123-cd]pyrene		205-893-2	193-39-5	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	benzo[ghi]perylene		205-883-8	191-24-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	phenol	604-001-00-2	203-632-7	108-95-2	<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0429 %		

Key

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

Classification of sample: TP-19

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

Sample details

Sample Name:	LoW Code:	
TP-19	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
8.2%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8.2% 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	antimony { antimony trioxide }				<2 mg/kg	1.197	<2.394 mg/kg	<0.000239 %		<LOD
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				27 mg/kg	1.32	35.649 mg/kg	0.00356 %		
	033-003-00-0	215-481-4	1327-53-3							
3	boron { diboron trioxide; boric oxide }				<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
	005-008-00-8	215-125-8	1303-86-2							
4	cadmium { cadmium oxide }				0.67 mg/kg	1.142	0.765 mg/kg	0.0000765 %		
	048-002-00-0	215-146-2	1306-19-0							
5	chromium in chromium(III) compounds { chromium(III) oxide }				24 mg/kg	1.462	35.077 mg/kg	0.00351 %		
		215-160-9	1308-38-9							
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
7	copper { dicopper oxide; copper (I) oxide }				76 mg/kg	1.126	85.568 mg/kg	0.00856 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	400 mg/kg	1.56	623.926 mg/kg	0.04 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				0.37 mg/kg	1.353	0.501 mg/kg	0.0000501 %		
	080-010-00-X	231-299-8	7487-94-7							
10	molybdenum { molybdenum(VI) oxide }				<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<LOD
	042-001-00-9	215-204-7	1313-27-5							
11	nickel { nickel chromate }				35 mg/kg	2.976	104.169 mg/kg	0.0104 %		
	028-035-00-7	238-766-5	14721-18-7							
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
13	zinc { zinc chromate }				140 mg/kg	2.774	388.381 mg/kg	0.0388 %		
	024-007-00-3									
14	TPH (C6 to C40) petroleum group				150 mg/kg		150 mg/kg	0.015 %		
			TPH							



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
21	pH				8.5 pH		8.5 pH	8.5 pH			
			PH								
22	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
26	phenanthrene				0.85 mg/kg		0.85 mg/kg	0.000085 %			
		201-581-5	85-01-8								
27	anthracene				0.11 mg/kg		0.11 mg/kg	0.000011 %			
		204-371-1	120-12-7								
28	fluoranthene				1.2 mg/kg		1.2 mg/kg	0.00012 %			
		205-912-4	206-44-0								
29	pyrene				1.2 mg/kg		1.2 mg/kg	0.00012 %			
		204-927-3	129-00-0								
30	benzo[a]anthracene				0.5 mg/kg		0.5 mg/kg	0.00005 %			
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				0.51 mg/kg		0.51 mg/kg	0.000051 %			
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				0.55 mg/kg		0.55 mg/kg	0.000055 %			
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				0.19 mg/kg		0.19 mg/kg	0.000019 %			
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				0.41 mg/kg		0.41 mg/kg	0.000041 %			
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				0.18 mg/kg		0.18 mg/kg	0.000018 %			
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				0.24 mg/kg		0.24 mg/kg	0.000024 %			
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.122 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.015%)

Classification of sample: TP-19[2]

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

Sample details

Sample Name:	LoW Code:
TP-19[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-2.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
15%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **15% 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	antimony { antimony trioxide }				<2 mg/kg	1.197	<2.394 mg/kg	<0.000239 %			<LOD
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				23 mg/kg	1.32	30.367 mg/kg	0.00304 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %			<LOD
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				2.2 mg/kg	1.142	2.513 mg/kg	0.000251 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				13 mg/kg	1.462	19 mg/kg	0.0019 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				36 mg/kg	1.126	40.532 mg/kg	0.00405 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	33 mg/kg	1.56	51.474 mg/kg	0.0033 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				0.12 mg/kg	1.353	0.162 mg/kg	0.0000162 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				4.7 mg/kg	1.5	7.051 mg/kg	0.000705 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				50 mg/kg	2.976	148.813 mg/kg	0.0149 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.53 mg/kg	2.554	1.353 mg/kg	0.000135 %			
	034-002-00-8										
13	zinc { zinc chromate }				83 mg/kg	2.774	230.254 mg/kg	0.023 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
21	pH				8.5 pH		8.5 pH	8.5 pH		
			PH							
22	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
26	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
27	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
28	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
29	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
30	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
31	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
32	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
33	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
34	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
35	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
37	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.0531 %		



environmental management for business

Key

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

Classification of sample: TP-20

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

Sample details

Sample Name:	TP-20	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.0-1.0 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	
Moisture content:	20%			
	(no correction)			

Hazard properties

None identified

Determinands

Moisture content: 20% 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	antimony { antimony trioxide }				2.3 mg/kg	1.197	2.753 mg/kg	0.000275 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				22 mg/kg	1.32	29.047 mg/kg	0.0029 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				0.58 mg/kg	3.22	1.868 mg/kg	0.000187 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				0.48 mg/kg	1.142	0.548 mg/kg	0.0000548 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				27 mg/kg	1.462	39.462 mg/kg	0.00395 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				130 mg/kg	1.126	146.365 mg/kg	0.0146 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	210 mg/kg	1.56	327.561 mg/kg	0.021 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				0.43 mg/kg	1.353	0.582 mg/kg	0.0000582 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				6.1 mg/kg	1.5	9.151 mg/kg	0.000915 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				100 mg/kg	2.976	297.626 mg/kg	0.0298 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.31 mg/kg	2.554	0.792 mg/kg	0.0000792 %			
	034-002-00-8										
13	zinc { zinc chromate }				140 mg/kg	2.774	388.381 mg/kg	0.0388 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				60 mg/kg		60 mg/kg	0.006 %			
			TPH								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
21	pH				8.3 pH		8.3 pH	8.3 pH			
			PH								
22	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
26	phenanthrene				0.75 mg/kg		0.75 mg/kg	0.000075 %			
		201-581-5	85-01-8								
27	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
28	fluoranthene				0.46 mg/kg		0.46 mg/kg	0.000046 %			
		205-912-4	206-44-0								
29	pyrene				0.43 mg/kg		0.43 mg/kg	0.000043 %			
		204-927-3	129-00-0								
30	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.119 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.006%)

Classification of sample: TP-20[2]

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

Sample details

Sample Name:	TP-20[2]	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	1.0-2.0 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	14% (no correction)			

Hazard properties

None identified

Determinands

Moisture content: 14% No Moisture Correction applied (MC)

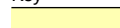
#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value		MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number										
1		antimony { antimony trioxide }				6.1	mg/kg	1.197	7.302	mg/kg	0.00073 %			
		051-005-00-X	215-175-0	1309-64-4										
2		arsenic { arsenic trioxide }				21	mg/kg	1.32	27.727	mg/kg	0.00277 %			
		033-003-00-0	215-481-4	1327-53-3										
3		boron { diboron trioxide; boric oxide }				<0.4	mg/kg	3.22	<1.288	mg/kg	<0.000129 %		<LOD	
		005-008-00-8	215-125-8	1303-86-2										
4		cadmium { cadmium oxide }				2.6	mg/kg	1.142	2.97	mg/kg	0.000297 %			
		048-002-00-0	215-146-2	1306-19-0										
5		chromium in chromium(III) compounds { chromium(III) oxide }				15	mg/kg	1.462	21.923	mg/kg	0.00219 %			
			215-160-9	1308-38-9										
6		chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD	
		024-001-00-0	215-607-8	1333-82-0										
7		copper { dicopper oxide; copper (I) oxide }				37	mg/kg	1.126	41.658	mg/kg	0.00417 %			
		029-002-00-X	215-270-7	1317-39-1										
8		lead { lead chromate }			1	18	mg/kg	1.56	28.077	mg/kg	0.0018 %			
		082-004-00-2	231-846-0	7758-97-6										
9		mercury { mercury dichloride }				<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD	
		080-010-00-X	231-299-8	7487-94-7										
10		molybdenum { molybdenum(VI) oxide }				5.5	mg/kg	1.5	8.251	mg/kg	0.000825 %			
		042-001-00-9	215-204-7	1313-27-5										
11		nickel { nickel chromate }				58	mg/kg	2.976	172.623	mg/kg	0.0173 %			
		028-035-00-7	238-766-5	14721-18-7										
12		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.41	mg/kg	2.554	1.047	mg/kg	0.000105 %			
		034-002-00-8												
13		zinc { zinc chromate }				83	mg/kg	2.774	230.254	mg/kg	0.023 %			
		024-007-00-3												
14		TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD	
				TPH										



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene	601-020-00-8	200-753-7	71-43-2	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene	601-021-00-3	203-625-9	108-88-3	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH			PH	8.4 pH		8.4 pH	8.4 pH		
22	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	acenaphthylene		205-917-1	208-96-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene		201-469-6	83-32-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	fluorene		201-695-5	86-73-7	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	phenanthrene		201-581-5	85-01-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	anthracene		204-371-1	120-12-7	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	fluoranthene		205-912-4	206-44-0	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	pyrene		204-927-3	129-00-0	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	indeno[123-cd]pyrene		205-893-2	193-39-5	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	benzo[ghi]perylene		205-883-8	191-24-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	phenol	604-001-00-2	203-632-7	108-95-2	<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0547 %		

Key

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

Classification of sample: TP-20[3]

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

Sample details

Sample Name:	LoW Code:	
TP-20[3]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
2.0-3.0 m		
Moisture content:		
12%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 12% 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	antimony { antimony trioxide }				4.9 mg/kg	1.197	5.866 mg/kg	0.000587 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				22 mg/kg	1.32	29.047 mg/kg	0.0029 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %			<LOD
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				2 mg/kg	1.142	2.285 mg/kg	0.000228 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				15 mg/kg	1.462	21.923 mg/kg	0.00219 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				34 mg/kg	1.126	38.28 mg/kg	0.00383 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	25 mg/kg	1.56	38.995 mg/kg	0.0025 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				4.8 mg/kg	1.5	7.201 mg/kg	0.00072 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				47 mg/kg	2.976	139.884 mg/kg	0.014 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.88 mg/kg	2.554	2.247 mg/kg	0.000225 %			
	034-002-00-8										
13	zinc { zinc chromate }				66 mg/kg	2.774	183.094 mg/kg	0.0183 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
21	pH				8.5 pH		8.5 pH	8.5 pH			
			pH								
22	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
26	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
27	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
28	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
29	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
30	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.047 %		

Key

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

Classification of sample: TP-22

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

Sample details

Sample Name:	TP-22	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.0-1.0 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	22%			
	(no correction)			

Hazard properties

None identified

Determinands

Moisture content: 22% 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	antimony { antimony trioxide }				2	mg/kg	1.197	2.394	mg/kg	0.000239 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				42	mg/kg	1.32	55.454	mg/kg	0.00555 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				0.94	mg/kg	3.22	3.027	mg/kg	0.000303 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.5	mg/kg	1.142	1.713	mg/kg	0.000171 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				20	mg/kg	1.462	29.231	mg/kg	0.00292 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				120	mg/kg	1.126	135.107	mg/kg	0.0135 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	300	mg/kg	1.56	467.945	mg/kg	0.03 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.61	mg/kg	1.353	0.826	mg/kg	0.0000826 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				3.6	mg/kg	1.5	5.401	mg/kg	0.00054 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				41	mg/kg	2.976	122.027	mg/kg	0.0122 %		
	028-035-00-7	238-766-5	14721-18-7									
12	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											
13	zinc { zinc chromate }				120	mg/kg	2.774	332.898	mg/kg	0.0333 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				190	mg/kg		190	mg/kg	0.019 %		
			TPH									



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
21	pH				8.3 pH		8.3 pH	8.3 pH		
			PH							
22	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
26	phenanthrene				1.3 mg/kg		1.3 mg/kg	0.00013 %		
		201-581-5	85-01-8							
27	anthracene				0.13 mg/kg		0.13 mg/kg	0.000013 %		
		204-371-1	120-12-7							
28	fluoranthene				0.92 mg/kg		0.92 mg/kg	0.000092 %		
		205-912-4	206-44-0							
29	pyrene				0.82 mg/kg		0.82 mg/kg	0.000082 %		
		204-927-3	129-00-0							
30	benzo[a]anthracene				0.33 mg/kg		0.33 mg/kg	0.000033 %		
	601-033-00-9	200-280-6	56-55-3							
31	chrysene				0.45 mg/kg		0.45 mg/kg	0.000045 %		
	601-048-00-0	205-923-4	218-01-9							
32	benzo[b]fluoranthene				0.5 mg/kg		0.5 mg/kg	0.00005 %		
	601-034-00-4	205-911-9	205-99-2							
33	benzo[k]fluoranthene				0.13 mg/kg		0.13 mg/kg	0.000013 %		
	601-036-00-5	205-916-6	207-08-9							
34	benzo[a]pyrene; benzo[def]chrysene				0.33 mg/kg		0.33 mg/kg	0.000033 %		
	601-032-00-3	200-028-5	50-32-8							
35	indeno[123-cd]pyrene				0.19 mg/kg		0.19 mg/kg	0.000019 %		
		205-893-2	193-39-5							
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
37	benzo[ghi]perylene				0.3 mg/kg		0.3 mg/kg	0.00003 %		
		205-883-8	191-24-2							
38	phenol				2.6 mg/kg		2.6 mg/kg	0.00026 %		
	604-001-00-2	203-632-7	108-95-2							
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.119 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.019%)

Classification of sample: TP-22[2]

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

Sample details

Sample Name:	LoW Code:
TP-22[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-2.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.4%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.4% 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	antimony { antimony trioxide }				2 mg/kg	1.197	2.394	mg/kg	0.000239 %		
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				21 mg/kg	1.32	27.727	mg/kg	0.00277 %		
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				<0.4 mg/kg	3.22	<1.288	mg/kg	<0.000129 %		<LOD
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				2.1 mg/kg	1.142	2.399	mg/kg	0.00024 %		
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				16 mg/kg	1.462	23.385	mg/kg	0.00234 %		
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				32 mg/kg	1.126	36.028	mg/kg	0.0036 %		
	029-002-00-X	215-270-7	1317-39-1								
8	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								
9	mercury { mercury dichloride }				<0.1 mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				4.8 mg/kg	1.5	7.201	mg/kg	0.00072 %		
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				49 mg/kg	2.976	145.837	mg/kg	0.0146 %		
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				4.2 mg/kg	2.554	10.725	mg/kg	0.00107 %		
	034-002-00-8										
13	zinc { zinc chromate }				79 mg/kg	2.774	219.158	mg/kg	0.0219 %		
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH								



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
21	pH				8.4 pH		8.4 pH	8.4 pH			
			PH								
22	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
26	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
27	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
28	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
29	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
30	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.0513 %		

Key

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

Classification of sample: TP-23

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

Sample details

Sample Name:	TP-23	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.0-1.0 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	17% (no correction)			

Hazard properties

None identified

Determinands

Moisture content: 17% 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	antimony { antimony trioxide }				2.1	mg/kg	1.197	2.514	mg/kg	0.000251 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				21	mg/kg	1.32	27.727	mg/kg	0.00277 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				2	mg/kg	3.22	6.44	mg/kg	0.000644 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				0.87	mg/kg	1.142	0.994	mg/kg	0.0000994 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				17	mg/kg	1.462	24.846	mg/kg	0.00248 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				58	mg/kg	1.126	65.302	mg/kg	0.00653 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	150	mg/kg	1.56	233.972	mg/kg	0.015 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.54	mg/kg	1.353	0.731	mg/kg	0.0000731 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				5.1	mg/kg	1.5	7.651	mg/kg	0.000765 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				37	mg/kg	2.976	110.122	mg/kg	0.011 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.1	mg/kg	2.554	2.809	mg/kg	0.000281 %		
	034-002-00-8											
13	zinc { zinc chromate }				89	mg/kg	2.774	246.899	mg/kg	0.0247 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				16	mg/kg		16	mg/kg	0.0016 %		
			TPH									



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
	603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene									
	601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene									
	601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene									
	601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene									
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }									
	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH									
			PH		8.2 pH		8.2 pH	8.2 pH		
22	naphthalene									
	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	acenaphthylene									
		205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene									
		201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	fluorene									
		201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	phenanthrene									
		201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	anthracene									
		204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	fluoranthene									
		205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	pyrene									
		204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[a]anthracene									
	601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	chrysene									
	601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	benzo[b]fluoranthene									
	601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[k]fluoranthene									
	601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene									
	601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	indeno[123-cd]pyrene									
		205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	dibenz[a,h]anthracene									
	601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	benzo[ghi]perylene									
		205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	phenol									
	604-001-00-2	203-632-7	108-95-2		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB									
	602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0666 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0016%)

Classification of sample: TP-23[2]

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

Sample details

Sample Name:	LoW Code:	
TP-23[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.0-2.0 m		
Moisture content:		
17%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 17% 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	antimony { antimony trioxide }				<2 mg/kg	1.197	<2.394 mg/kg	<0.000239 %			<LOD
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				20 mg/kg	1.32	26.407 mg/kg	0.00264 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				0.55 mg/kg	3.22	1.771 mg/kg	0.000177 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				2 mg/kg	1.142	2.285 mg/kg	0.000228 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				31 mg/kg	1.126	34.903 mg/kg	0.00349 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	21 mg/kg	1.56	32.756 mg/kg	0.0021 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				6.1 mg/kg	1.5	9.151 mg/kg	0.000915 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				53 mg/kg	2.976	157.742 mg/kg	0.0158 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.64 mg/kg	2.554	1.634 mg/kg	0.000163 %			
	034-002-00-8										
13	zinc { zinc chromate }				82 mg/kg	2.774	227.48 mg/kg	0.0227 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
21	pH				8.4 pH		8.4 pH	8.4 pH			
			PH								
22	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
26	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
27	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
28	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
29	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
30	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.0525 %		

Key

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

Classification of sample: TP-23[3]

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

Sample details

Sample Name:	LoW Code:	
TP-23[3]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
2.0-3.0 m		
Moisture content:		
11%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: **11% 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	antimony { antimony trioxide }				3.2	mg/kg	1.197	3.831	mg/kg	0.000383 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				<0.4	mg/kg	3.22	<1.288	mg/kg	<0.000129 %		<LOD
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.7	mg/kg	1.142	1.942	mg/kg	0.000194 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				11	mg/kg	1.462	16.077	mg/kg	0.00161 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				24	mg/kg	1.126	27.021	mg/kg	0.0027 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	21	mg/kg	1.56	32.756	mg/kg	0.0021 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				3.8	mg/kg	1.5	5.701	mg/kg	0.00057 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				31	mg/kg	2.976	92.264	mg/kg	0.00923 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.81	mg/kg	2.554	2.068	mg/kg	0.000207 %		
	034-002-00-8											
13	zinc { zinc chromate }				56	mg/kg	2.774	155.352	mg/kg	0.0155 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				78	mg/kg		78	mg/kg	0.0078 %		
			TPH									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene	601-020-00-8	200-753-7	71-43-2	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene	601-021-00-3	203-625-9	108-88-3	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH			PH	8.6 pH		8.6 pH	8.6 pH		
22	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	acenaphthylene		205-917-1	208-96-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene		201-469-6	83-32-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	fluorene		201-695-5	86-73-7	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	phenanthrene		201-581-5	85-01-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	anthracene		204-371-1	120-12-7	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	fluoranthene		205-912-4	206-44-0	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	pyrene		204-927-3	129-00-0	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	indeno[123-cd]pyrene		205-893-2	193-39-5	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	benzo[ghi]perylene		205-883-8	191-24-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	phenol	604-001-00-2	203-632-7	108-95-2	<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0427 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0078%)

Classification of sample: TP-25

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

Sample details

Sample Name:	TP-25	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.0-1.0 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	
Moisture content:	16%			
	(no correction)			

Hazard properties

None identified

Determinands

Moisture content: 16% 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	antimony { antimony trioxide }				4.7 mg/kg	1.197	5.626 mg/kg	0.000563 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				44 mg/kg	1.32	58.094 mg/kg	0.00581 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				1.4 mg/kg	3.22	4.508 mg/kg	0.000451 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				1.1 mg/kg	1.142	1.257 mg/kg	0.000126 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				29 mg/kg	1.462	42.385 mg/kg	0.00424 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				120 mg/kg	1.126	135.107 mg/kg	0.0135 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	530 mg/kg	1.56	826.702 mg/kg	0.053 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				1.6 mg/kg	1.353	2.166 mg/kg	0.000217 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				6.3 mg/kg	1.5	9.451 mg/kg	0.000945 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				65 mg/kg	2.976	193.457 mg/kg	0.0193 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.89 mg/kg	2.554	2.273 mg/kg	0.000227 %			
	034-002-00-8										
13	zinc { zinc chromate }				270 mg/kg	2.774	749.02 mg/kg	0.0749 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				270 mg/kg		270 mg/kg	0.027 %			
			TPH								



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Report created by Austin Hynes on 12 Jul 2019

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.6 mg/kg	1.884	1.13 mg/kg	0.000113 %			
	006-007-00-5										
21	pH				8.1 pH		8.1 pH	8.1 pH			
			PH								
22	naphthalene				0.51 mg/kg		0.51 mg/kg	0.000051 %			
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				0.16 mg/kg		0.16 mg/kg	0.000016 %			
		205-917-1	208-96-8								
24	acenaphthene				0.72 mg/kg		0.72 mg/kg	0.000072 %			
		201-469-6	83-32-9								
25	fluorene				0.45 mg/kg		0.45 mg/kg	0.000045 %			
		201-695-5	86-73-7								
26	phenanthrene				5 mg/kg		5 mg/kg	0.0005 %			
		201-581-5	85-01-8								
27	anthracene				1 mg/kg		1 mg/kg	0.0001 %			
		204-371-1	120-12-7								
28	fluoranthene				6.9 mg/kg		6.9 mg/kg	0.00069 %			
		205-912-4	206-44-0								
29	pyrene				6 mg/kg		6 mg/kg	0.0006 %			
		204-927-3	129-00-0								
30	benzo[a]anthracene				3.1 mg/kg		3.1 mg/kg	0.00031 %			
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				3.7 mg/kg		3.7 mg/kg	0.00037 %			
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				4 mg/kg		4 mg/kg	0.0004 %			
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				1.5 mg/kg		1.5 mg/kg	0.00015 %			
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				3.2 mg/kg		3.2 mg/kg	0.00032 %			
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				1.8 mg/kg		1.8 mg/kg	0.00018 %			
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				0.36 mg/kg		0.36 mg/kg	0.000036 %			
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				2.1 mg/kg		2.1 mg/kg	0.00021 %			
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
40	asbestos				1 mg/kg		1 mg/kg	0.0001 %			
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
			77536-68-6 77536-67-5 12001-29-5							
Total:								0.205 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.027%)

Classification of sample: TP-25[2]

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

Sample details

Sample Name:	TP-25[2]	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	1.0-2.0 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	12% (no correction)			

Hazard properties

None identified

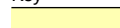
Determinands

Moisture content: 12% 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	antimony { antimony trioxide }				<2	mg/kg	1.197	<2.394	mg/kg	<0.000239 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				20	mg/kg	1.32	26.407	mg/kg	0.00264 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				0.53	mg/kg	3.22	1.707	mg/kg	0.000171 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.7	mg/kg	1.142	1.942	mg/kg	0.000194 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				11	mg/kg	1.462	16.077	mg/kg	0.00161 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	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									
8	lead { lead chromate }			1	22	mg/kg	1.56	34.316	mg/kg	0.0022 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				3.5	mg/kg	1.5	5.251	mg/kg	0.000525 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				37	mg/kg	2.976	110.122	mg/kg	0.011 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.41	mg/kg	2.554	1.047	mg/kg	0.000105 %		
	034-002-00-8											
13	zinc { zinc chromate }				58	mg/kg	2.774	160.9	mg/kg	0.0161 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene	601-020-00-8	200-753-7	71-43-2	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene	601-021-00-3	203-625-9	108-88-3	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH			PH	8.5 pH		8.5 pH	8.5 pH		
22	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	acenaphthylene		205-917-1	208-96-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene		201-469-6	83-32-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	fluorene		201-695-5	86-73-7	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	phenanthrene		201-581-5	85-01-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	anthracene		204-371-1	120-12-7	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	fluoranthene		205-912-4	206-44-0	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	pyrene		204-927-3	129-00-0	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	indeno[123-cd]pyrene		205-893-2	193-39-5	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	benzo[ghi]perylene		205-883-8	191-24-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	phenol	604-001-00-2	203-632-7	108-95-2	<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0392 %		

Key

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

Appendix A: Classifier defined and non CLP determinands

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

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

■ **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

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

CLP index number: 601-023-00-4

Description/Comments:

Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)

Additional Hazard Statement(s): Carc. 2 H351

Reason for additional Hazards Statement(s)/Risk Phrase(s):

03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

■ **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s)/Risk Phrase(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

■ **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

polychlorobiphenyls; PCB (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4

Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s)/Risk Phrase(s):

29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings

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

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

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. 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

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

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

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

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments

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. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight

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.

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.1, May 2018**

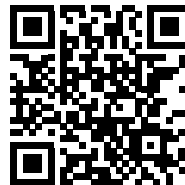
HazWasteOnline Classification Engine Version: 2019.190.3901.7928 (09 Jul 2019)

HazWasteOnline Database: 2019.190.3901.7928 (09 Jul 2019)

This classification utilises the following guidance and legislation:

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

Waste Classification Report



JQMDJ-K4QXA-UCGF4

Job name

19-245 PW 051119

Description/Comments

Project

19-245 PW

Site

Player Wills

Related Documents

#	Name	Description
None		

Waste Stream Template

O'Callaghan Moran Waste Stream

Classified by

Name:
Austin Hynes
Date:
06 Nov 2019 14:55 GMT
Telephone:
021 4345366

Company:
O'Callaghan Moran and Associates
Unit 15 Melbourne Business Park
Model Farm Road
Cork

Report

Created by: Austin Hynes
Created date: 06 Nov 2019 14:55 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	TP-B1	0.0-1.0	Non Hazardous		3
2	TP-B1[2]	1.0-2.0	Non Hazardous		6
3	TP-B2	0.0-1.0	Non Hazardous		9
4	TP-B2[2]	1.0-2.0	Non Hazardous		12
5	TP-B3	0.0-1.0	Non Hazardous		15
6	TP-B3[2]	1.0-2.0	Non Hazardous		18
7	TP-B4	0.0-1.0	Non Hazardous		21
8	TP-B4[2]	1.0-2.0	Non Hazardous		24
9	TP-B5	0.0-1.0	Non Hazardous		27
10	TP-B5[2]	1.0-2.0	Non Hazardous		30
11	TP-B6	1.0-2.0	Non Hazardous		33
12	TP-B6[2]	0.0-1.0	Non Hazardous		36

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	39
Appendix B: Rationale for selection of metal species	40
Appendix C: Version	41

Classification of sample: TP-B1

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

Sample details

Sample Name:	LoW Code:	
TP-B1	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
8.9%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8.9% 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	antimony { antimony trioxide }				<2 mg/kg	1.197	<2.394 mg/kg	<0.000239 %		<LOD
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				25 mg/kg	1.32	33.008 mg/kg	0.0033 %		
	033-003-00-0	215-481-4	1327-53-3							
3	boron { diboron trioxide; boric oxide }				1.3 mg/kg	3.22	4.186 mg/kg	0.000419 %		
	005-008-00-8	215-125-8	1303-86-2							
4	cadmium { cadmium oxide }				1 mg/kg	1.142	1.142 mg/kg	0.000114 %		
	048-002-00-0	215-146-2	1306-19-0							
5	chromium in chromium(III) compounds { chromium(III) oxide }				20 mg/kg	1.462	29.231 mg/kg	0.00292 %		
		215-160-9	1308-38-9							
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
7	copper { dicopper oxide; copper (I) oxide }				53 mg/kg	1.126	59.672 mg/kg	0.00597 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	200 mg/kg	1.56	311.963 mg/kg	0.02 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				0.75 mg/kg	1.353	1.015 mg/kg	0.000102 %		
	080-010-00-X	231-299-8	7487-94-7							
10	molybdenum { molybdenum(VI) oxide }				2.2 mg/kg	1.5	3.3 mg/kg	0.00033 %		
	042-001-00-9	215-204-7	1313-27-5							
11	nickel { nickel chromate }				38 mg/kg	2.976	113.098 mg/kg	0.0113 %		
	028-035-00-7	238-766-5	14721-18-7							
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.25 mg/kg	2.554	0.638 mg/kg	0.0000638 %		
	034-002-00-8									
13	zinc { zinc chromate }				100 mg/kg	2.774	277.415 mg/kg	0.0277 %		
	024-007-00-3									
14	TPH (C6 to C40) petroleum group				51 mg/kg		51 mg/kg	0.0051 %		
			TPH							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
21	pH				8.8 pH		8.8 pH	8.8 pH			
			PH								
22	naphthalene				0.18 mg/kg		0.18 mg/kg	0.000018 %			
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				0.13 mg/kg		0.13 mg/kg	0.000013 %			
		201-469-6	83-32-9								
25	fluorene				0.12 mg/kg		0.12 mg/kg	0.000012 %			
		201-695-5	86-73-7								
26	phenanthrene				1.5 mg/kg		1.5 mg/kg	0.00015 %			
		201-581-5	85-01-8								
27	anthracene				0.2 mg/kg		0.2 mg/kg	0.00002 %			
		204-371-1	120-12-7								
28	fluoranthene				2.2 mg/kg		2.2 mg/kg	0.00022 %			
		205-912-4	206-44-0								
29	pyrene				2.2 mg/kg		2.2 mg/kg	0.00022 %			
		204-927-3	129-00-0								
30	benzo[a]anthracene				1.1 mg/kg		1.1 mg/kg	0.00011 %			
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				1 mg/kg		1 mg/kg	0.0001 %			
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				1.4 mg/kg		1.4 mg/kg	0.00014 %			
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				0.44 mg/kg		0.44 mg/kg	0.000044 %			
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				1.2 mg/kg		1.2 mg/kg	0.00012 %			
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				0.63 mg/kg		0.63 mg/kg	0.000063 %			
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				0.1 mg/kg		0.1 mg/kg	0.00001 %			
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				0.63 mg/kg		0.63 mg/kg	0.000063 %			
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.0792 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0051%)

Classification of sample: TP-B1[2]

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

Sample details

Sample Name:	LoW Code:
TP-B1[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-2.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
25%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 25% 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	antimony { antimony trioxide }				3.1	mg/kg	1.197	3.711	mg/kg	0.000371 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				36	mg/kg	1.32	47.532	mg/kg	0.00475 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				2.6	mg/kg	3.22	8.372	mg/kg	0.000837 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.1	mg/kg	1.142	1.257	mg/kg	0.000126 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				18	mg/kg	1.462	26.308	mg/kg	0.00263 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				140	mg/kg	1.126	157.624	mg/kg	0.0158 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	430	mg/kg	1.56	670.721	mg/kg	0.043 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				2.2	mg/kg	1.353	2.978	mg/kg	0.000298 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				4.3	mg/kg	1.5	6.451	mg/kg	0.000645 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				63	mg/kg	2.976	187.505	mg/kg	0.0188 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.92	mg/kg	2.554	2.349	mg/kg	0.000235 %		
	034-002-00-8											
13	zinc { zinc chromate }				150	mg/kg	2.774	416.122	mg/kg	0.0416 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				320	mg/kg		320	mg/kg	0.032 %		
			TPH									



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene 601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene 601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				0.5 mg/kg	1.884	0.942 mg/kg	0.0000942 %		
21	pH PH				7.8 pH		7.8 pH	7.8 pH		
22	naphthalene 601-052-00-2	202-049-5	91-20-3		0.34 mg/kg		0.34 mg/kg	0.000034 %		
23	acenaphthylene 205-917-1	208-96-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene 201-469-6	83-32-9			0.26 mg/kg		0.26 mg/kg	0.000026 %		
25	fluorene 201-695-5	86-73-7			0.23 mg/kg		0.23 mg/kg	0.000023 %		
26	phenanthrene 201-581-5	85-01-8			3 mg/kg		3 mg/kg	0.0003 %		
27	anthracene 204-371-1	120-12-7			0.4 mg/kg		0.4 mg/kg	0.00004 %		
28	fluoranthene 205-912-4	206-44-0			4.2 mg/kg		4.2 mg/kg	0.00042 %		
29	pyrene 204-927-3	129-00-0			3.6 mg/kg		3.6 mg/kg	0.00036 %		
30	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		2 mg/kg		2 mg/kg	0.0002 %		
31	chrysene 601-048-00-0	205-923-4	218-01-9		2.1 mg/kg		2.1 mg/kg	0.00021 %		
32	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		2.6 mg/kg		2.6 mg/kg	0.00026 %		
33	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		0.69 mg/kg		0.69 mg/kg	0.000069 %		
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		1.9 mg/kg		1.9 mg/kg	0.00019 %		
35	indeno[123-cd]pyrene 205-893-2	193-39-5			0.95 mg/kg		0.95 mg/kg	0.000095 %		
36	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		0.13 mg/kg		0.13 mg/kg	0.000013 %		
37	benzo[ghi]perylene 205-883-8	191-24-2			0.99 mg/kg		0.99 mg/kg	0.000099 %		
38	phenol 604-001-00-2	203-632-7	108-95-2		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.164 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.032%)

Classification of sample: TP-B2

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

Sample details

Sample Name:	LoW Code:	
TP-B2	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
26%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 26% 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	antimony { antimony trioxide }				7.6 mg/kg	1.197	9.098 mg/kg	0.00091 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				45 mg/kg	1.32	59.415 mg/kg	0.00594 %			
	033-003-00-0	215-481-4	1327-53-3								
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 }				1.2 mg/kg	1.142	1.371 mg/kg	0.000137 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				21 mg/kg	1.462	30.693 mg/kg	0.00307 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				160 mg/kg	1.126	180.142 mg/kg	0.018 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	820 mg/kg	1.56	1279.048 mg/kg	0.082 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				2.8 mg/kg	1.353	3.79 mg/kg	0.000379 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				5.6 mg/kg	1.5	8.401 mg/kg	0.00084 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				60 mg/kg	2.976	178.576 mg/kg	0.0179 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				1.2 mg/kg	2.554	3.064 mg/kg	0.000306 %			
	034-002-00-8										
13	zinc { zinc chromate }				360 mg/kg	2.774	998.693 mg/kg	0.0999 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				580 mg/kg		580 mg/kg	0.058 %			
			TPH								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.9 mg/kg	1.884	1.696 mg/kg	0.00017 %			
	006-007-00-5										
21	pH				7.8 pH		7.8 pH	7.8 pH			
			pH								
22	naphthalene				0.41 mg/kg		0.41 mg/kg	0.000041 %			
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				0.26 mg/kg		0.26 mg/kg	0.000026 %			
		205-917-1	208-96-8								
24	acenaphthene				0.64 mg/kg		0.64 mg/kg	0.000064 %			
		201-469-6	83-32-9								
25	fluorene				0.58 mg/kg		0.58 mg/kg	0.000058 %			
		201-695-5	86-73-7								
26	phenanthrene				7.6 mg/kg		7.6 mg/kg	0.00076 %			
		201-581-5	85-01-8								
27	anthracene				1.3 mg/kg		1.3 mg/kg	0.00013 %			
		204-371-1	120-12-7								
28	fluoranthene				12 mg/kg		12 mg/kg	0.0012 %			
		205-912-4	206-44-0								
29	pyrene				11 mg/kg		11 mg/kg	0.0011 %			
		204-927-3	129-00-0								
30	benzo[a]anthracene				6.5 mg/kg		6.5 mg/kg	0.00065 %			
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				6.6 mg/kg		6.6 mg/kg	0.00066 %			
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				8.3 mg/kg		8.3 mg/kg	0.00083 %			
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				2.7 mg/kg		2.7 mg/kg	0.00027 %			
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				7.1 mg/kg		7.1 mg/kg	0.00071 %			
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				4.8 mg/kg		4.8 mg/kg	0.00048 %			
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				0.88 mg/kg		0.88 mg/kg	0.000088 %			
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				4.1 mg/kg		4.1 mg/kg	0.00041 %			
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.296 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.058%)

Classification of sample: TP-B2[2]



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

Sample details

Sample Name:	TP-B2[2]	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	1.0-2.0 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	17% (no correction)	Entry:	

Hazard properties

None identified

Determinands

Moisture content: 17% 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	antimony { antimony trioxide }				2.3	mg/kg	1.197	2.753	mg/kg	0.000275 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				18	mg/kg	1.32	23.766	mg/kg	0.00238 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				0.63	mg/kg	3.22	2.029	mg/kg	0.000203 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				2	mg/kg	1.142	2.285	mg/kg	0.000228 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				17	mg/kg	1.462	24.846	mg/kg	0.00248 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				28	mg/kg	1.126	31.525	mg/kg	0.00315 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	89	mg/kg	1.56	138.824	mg/kg	0.0089 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.36	mg/kg	1.353	0.487	mg/kg	0.0000487 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				6.6	mg/kg	1.5	9.901	mg/kg	0.00099 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				48	mg/kg	2.976	142.861	mg/kg	0.0143 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.67	mg/kg	2.554	1.711	mg/kg	0.000171 %		
	034-002-00-8											
13	zinc { zinc chromate }				96	mg/kg	2.774	266.318	mg/kg	0.0266 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
16	benzene 601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
17	toluene 601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
18	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
19	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
21	pH PH				8.4 pH		8.4 pH	8.4 pH			
22	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
23	acenaphthylene 205-917-1		208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	acenaphthene 201-469-6		83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
25	fluorene 201-695-5		86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
26	phenanthrene 201-581-5		85-01-8		0.24 mg/kg		0.24 mg/kg	0.000024 %			
27	anthracene 204-371-1		120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
28	fluoranthene 205-912-4		206-44-0		0.24 mg/kg		0.24 mg/kg	0.000024 %			
29	pyrene 204-927-3		129-00-0		0.22 mg/kg		0.22 mg/kg	0.000022 %			
30	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
31	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
32	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
33	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
35	indeno[123-cd]pyrene 205-893-2		193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
36	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
37	benzo[ghi]perylene 205-883-8		191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
38	phenol 604-001-00-2	203-632-7	108-95-2		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
39	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
Total:									0.0612 %		



Key

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

Classification of sample: TP-B3

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

Sample details

Sample Name:	LoW Code:	
TP-B3	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
28%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 28% 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	antimony { antimony trioxide }				3.3 mg/kg	1.197	3.95 mg/kg	0.000395 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				36 mg/kg	1.32	47.532 mg/kg	0.00475 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				4.3 mg/kg	3.22	13.845 mg/kg	0.00138 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				1.2 mg/kg	1.142	1.371 mg/kg	0.000137 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				21 mg/kg	1.462	30.693 mg/kg	0.00307 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				140 mg/kg	1.126	157.624 mg/kg	0.0158 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	560 mg/kg	1.56	873.496 mg/kg	0.056 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				1.8 mg/kg	1.353	2.436 mg/kg	0.000244 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				4.9 mg/kg	1.5	7.351 mg/kg	0.000735 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				63 mg/kg	2.976	187.505 mg/kg	0.0188 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.89 mg/kg	2.554	2.273 mg/kg	0.000227 %			
	034-002-00-8										
13	zinc { zinc chromate }				160 mg/kg	2.774	443.863 mg/kg	0.0444 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				320 mg/kg		320 mg/kg	0.032 %			
			TPH								



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
21	pH				7.8 pH		7.8 pH	7.8 pH			
			PH								
22	naphthalene				0.32 mg/kg		0.32 mg/kg	0.000032 %			
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
26	phenanthrene				1.6 mg/kg		1.6 mg/kg	0.00016 %			
		201-581-5	85-01-8								
27	anthracene				0.13 mg/kg		0.13 mg/kg	0.000013 %			
		204-371-1	120-12-7								
28	fluoranthene				1.7 mg/kg		1.7 mg/kg	0.00017 %			
		205-912-4	206-44-0								
29	pyrene				1.5 mg/kg		1.5 mg/kg	0.00015 %			
		204-927-3	129-00-0								
30	benzo[a]anthracene				0.46 mg/kg		0.46 mg/kg	0.000046 %			
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				0.51 mg/kg		0.51 mg/kg	0.000051 %			
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				0.42 mg/kg		0.42 mg/kg	0.000042 %			
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				0.32 mg/kg		0.32 mg/kg	0.000032 %			
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				0.12 mg/kg		0.12 mg/kg	0.000012 %			
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				0.17 mg/kg		0.17 mg/kg	0.000017 %			
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.179 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.032%)

Classification of sample: TP-B3[2]

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

Sample details

Sample Name:	TP-B3[2]	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	1.0-2.0 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	20% (no correction)	Entry:	

Hazard properties

None identified

Determinands

Moisture content: 20% No Moisture Correction applied (MC)

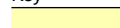
#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				<2	mg/kg	1.197	<2.394	mg/kg	<0.000239 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				2.4	mg/kg	3.22	7.728	mg/kg	0.000773 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				0.89	mg/kg	1.142	1.017	mg/kg	0.000102 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				17	mg/kg	1.462	24.846	mg/kg	0.00248 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				25	mg/kg	1.126	28.147	mg/kg	0.00281 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	54	mg/kg	1.56	84.23	mg/kg	0.0054 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.29	mg/kg	1.353	0.393	mg/kg	0.0000393 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				3.7	mg/kg	1.5	5.551	mg/kg	0.000555 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				34	mg/kg	2.976	101.193	mg/kg	0.0101 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.58	mg/kg	2.554	1.481	mg/kg	0.000148 %		
	034-002-00-8											
13	zinc { zinc chromate }				72	mg/kg	2.774	199.739	mg/kg	0.02 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene 601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene 601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH PH				7.9 pH		7.9 pH	7.9 pH		
22	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	acenaphthylene 205-917-1		208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene 201-469-6		83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	fluorene 201-695-5		86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	phenanthrene 201-581-5		85-01-8		0.61 mg/kg		0.61 mg/kg	0.000061 %		
27	anthracene 204-371-1		120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	fluoranthene 205-912-4		206-44-0		0.44 mg/kg		0.44 mg/kg	0.000044 %		
29	pyrene 204-927-3		129-00-0		0.44 mg/kg		0.44 mg/kg	0.000044 %		
30	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	indeno[123-cd]pyrene 205-893-2		193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	benzo[ghi]perylene 205-883-8		191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	phenol 604-001-00-2	203-632-7	108-95-2		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.046 %		

Key

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

Classification of sample: TP-B4

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

Sample details

Sample Name:	LoW Code:	
TP-B4	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
32%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 32% 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	antimony { antimony trioxide }				3.6	mg/kg	1.197	4.31	mg/kg	0.000431 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				40	mg/kg	1.32	52.813	mg/kg	0.00528 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				3.7	mg/kg	3.22	11.914	mg/kg	0.00119 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.4	mg/kg	1.142	1.599	mg/kg	0.00016 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				140	mg/kg	1.126	157.624	mg/kg	0.0158 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	860	mg/kg	1.56	1341.441	mg/kg	0.086 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				2.1	mg/kg	1.353	2.842	mg/kg	0.000284 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				4.9	mg/kg	1.5	7.351	mg/kg	0.000735 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				63	mg/kg	2.976	187.505	mg/kg	0.0188 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				0.94	mg/kg	2.554	2.4	mg/kg	0.00024 %		
	034-002-00-8											
13	zinc { zinc chromate }				160	mg/kg	2.774	443.863	mg/kg	0.0444 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				930	mg/kg		930	mg/kg	0.093 %		
			TPH									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.7 mg/kg	1.884	1.319 mg/kg	0.000132 %			
	006-007-00-5										
21	pH				7.7 pH		7.7 pH	7.7 pH			
			PH								
22	naphthalene				3.8 mg/kg		3.8 mg/kg	0.00038 %			
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				1.6 mg/kg		1.6 mg/kg	0.00016 %			
		201-469-6	83-32-9								
25	fluorene				1.1 mg/kg		1.1 mg/kg	0.00011 %			
		201-695-5	86-73-7								
26	phenanthrene				7.9 mg/kg		7.9 mg/kg	0.00079 %			
		201-581-5	85-01-8								
27	anthracene				1.9 mg/kg		1.9 mg/kg	0.00019 %			
		204-371-1	120-12-7								
28	fluoranthene				7.2 mg/kg		7.2 mg/kg	0.00072 %			
		205-912-4	206-44-0								
29	pyrene				6.1 mg/kg		6.1 mg/kg	0.00061 %			
		204-927-3	129-00-0								
30	benzo[a]anthracene				3.2 mg/kg		3.2 mg/kg	0.00032 %			
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				3.1 mg/kg		3.1 mg/kg	0.00031 %			
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				3.8 mg/kg		3.8 mg/kg	0.00038 %			
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				1.1 mg/kg		1.1 mg/kg	0.00011 %			
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				3 mg/kg		3 mg/kg	0.0003 %			
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				2 mg/kg		2 mg/kg	0.0002 %			
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				0.25 mg/kg		0.25 mg/kg	0.000025 %			
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				1.7 mg/kg		1.7 mg/kg	0.00017 %			
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.274 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.093%)

Classification of sample: TP-B4[2]

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

Sample details

Sample Name:	TP-B4[2]	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	1.0-2.0 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	14%	Entry:	
	(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 14% 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	antimony { antimony trioxide }				<2	mg/kg	1.197	<2.394	mg/kg	<0.000239 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				19	mg/kg	1.32	25.086	mg/kg	0.00251 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				0.56	mg/kg	3.22	1.803	mg/kg	0.00018 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.4	mg/kg	1.142	1.599	mg/kg	0.00016 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				12	mg/kg	1.462	17.539	mg/kg	0.00175 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				20	mg/kg	1.126	22.518	mg/kg	0.00225 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	52	mg/kg	1.56	81.11	mg/kg	0.0052 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.23	mg/kg	1.353	0.311	mg/kg	0.0000311 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				2.4	mg/kg	1.5	3.6	mg/kg	0.00036 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				30	mg/kg	2.976	89.288	mg/kg	0.00893 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.22	mg/kg	2.554	0.562	mg/kg	0.0000562 %		
	034-002-00-8											
13	zinc { zinc chromate }				43	mg/kg	2.774	119.288	mg/kg	0.0119 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene 601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene 601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH PH				8.5 pH		8.5 pH	8.5 pH		
22	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	acenaphthylene 205-917-1		208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene 201-469-6		83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	fluorene 201-695-5		86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	phenanthrene 201-581-5		85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	anthracene 204-371-1		120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	fluoranthene 205-912-4		206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	pyrene 204-927-3		129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	indeno[123-cd]pyrene 205-893-2		193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	benzo[ghi]perylene 205-883-8		191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	phenol 604-001-00-2	203-632-7	108-95-2		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.035 %		

Key

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

Classification of sample: TP-B5

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

Sample details

Sample Name:	LoW Code:	
TP-B5	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
21%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 21% 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	antimony { antimony trioxide }				2.4 mg/kg	1.197	2.873 mg/kg	0.000287 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				30 mg/kg	1.32	39.61 mg/kg	0.00396 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				2.1 mg/kg	3.22	6.762 mg/kg	0.000676 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				1.3 mg/kg	1.142	1.485 mg/kg	0.000149 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				17 mg/kg	1.462	24.846 mg/kg	0.00248 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				82 mg/kg	1.126	92.323 mg/kg	0.00923 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	310 mg/kg	1.56	483.543 mg/kg	0.031 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				0.96 mg/kg	1.353	1.299 mg/kg	0.00013 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				4.5 mg/kg	1.5	6.751 mg/kg	0.000675 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				53 mg/kg	2.976	157.742 mg/kg	0.0158 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				0.63 mg/kg	2.554	1.609 mg/kg	0.000161 %			
	034-002-00-8										
13	zinc { zinc chromate }				100 mg/kg	2.774	277.415 mg/kg	0.0277 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				50 mg/kg		50 mg/kg	0.005 %			
			TPH								



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.7 mg/kg	1.884	1.319 mg/kg	0.000132 %			
	006-007-00-5										
21	pH				8.9 pH		8.9 pH	8.9 pH			
			PH								
22	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
26	phenanthrene				1.4 mg/kg		1.4 mg/kg	0.00014 %			
		201-581-5	85-01-8								
27	anthracene				0.14 mg/kg		0.14 mg/kg	0.000014 %			
		204-371-1	120-12-7								
28	fluoranthene				1.3 mg/kg		1.3 mg/kg	0.00013 %			
		205-912-4	206-44-0								
29	pyrene				1 mg/kg		1 mg/kg	0.0001 %			
		204-927-3	129-00-0								
30	benzo[a]anthracene				0.35 mg/kg		0.35 mg/kg	0.000035 %			
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				0.4 mg/kg		0.4 mg/kg	0.00004 %			
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				0.33 mg/kg		0.33 mg/kg	0.000033 %			
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				0.18 mg/kg		0.18 mg/kg	0.000018 %			
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
40	asbestos				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
			77536-68-6 77536-67-5 12001-29-5							
Total:								0.0991 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.005%)

Classification of sample: TP-B5[2]



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

Sample details

Sample Name:	TP-B5[2]	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	1.0-2.0 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	14%	Entry:	
	(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 14% 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	antimony { antimony trioxide }				<2	mg/kg	1.197	<2.394	mg/kg	<0.000239 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				23	mg/kg	1.32	30.367	mg/kg	0.00304 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				0.64	mg/kg	3.22	2.061	mg/kg	0.000206 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				2.1	mg/kg	1.142	2.399	mg/kg	0.00024 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				33	mg/kg	1.126	37.154	mg/kg	0.00372 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	34	mg/kg	1.56	53.034	mg/kg	0.0034 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.17	mg/kg	1.353	0.23	mg/kg	0.000023 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				4.2	mg/kg	1.5	6.301	mg/kg	0.00063 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				53	mg/kg	2.976	157.742	mg/kg	0.0158 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.33	mg/kg	2.554	0.843	mg/kg	0.0000843 %		
	034-002-00-8											
13	zinc { zinc chromate }				64	mg/kg	2.774	177.545	mg/kg	0.0178 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X 216-653-1 1634-04-4				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
16	benzene 601-020-00-8 200-753-7 71-43-2				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
17	toluene 601-021-00-3 203-625-9 108-88-3				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
18	ethylbenzene 601-023-00-4 202-849-4 100-41-4				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
19	xylene 601-022-00-9 202-422-2 [1] 95-47-6 [1] 203-396-5 [2] 106-42-3 [2] 203-576-3 [3] 108-38-3 [3] 215-535-7 [4] 1330-20-7 [4]				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg		<0.0000942 %		<LOD
21	pH PH				8.5 pH		8.5 pH		8.5 pH		
22	naphthalene 601-052-00-2 202-049-5 91-20-3				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
23	acenaphthylene 205-917-1 208-96-8				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
24	acenaphthene 201-469-6 83-32-9				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
25	fluorene 201-695-5 86-73-7				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
26	phenanthrene 201-581-5 85-01-8				0.56 mg/kg		0.56 mg/kg		0.000056 %		
27	anthracene 204-371-1 120-12-7				0.13 mg/kg		0.13 mg/kg		0.000013 %		
28	fluoranthene 205-912-4 206-44-0				0.61 mg/kg		0.61 mg/kg		0.000061 %		
29	pyrene 204-927-3 129-00-0				0.52 mg/kg		0.52 mg/kg		0.000052 %		
30	benzo[a]anthracene 601-033-00-9 200-280-6 56-55-3				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
31	chrysene 601-048-00-0 205-923-4 218-01-9				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
32	benzo[b]fluoranthene 601-034-00-4 205-911-9 205-99-2				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
33	benzo[k]fluoranthene 601-036-00-5 205-916-6 207-08-9				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3 200-028-5 50-32-8				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
35	indeno[123-cd]pyrene 205-893-2 193-39-5				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
36	dibenz[a,h]anthracene 601-041-00-2 200-181-8 53-70-3				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
37	benzo[ghi]perylene 205-883-8 191-24-2				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
38	phenol 604-001-00-2 203-632-7 108-95-2				<0.3 mg/kg		<0.3 mg/kg		<0.00003 %		<LOD
39	polychlorobiphenyls; PCB 602-039-00-4 215-648-1 1336-36-3				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
40	asbestos 650-013-00-6 ----- 12001-28-4 132207-32-0 12172-73-5 77536-66-4				10 mg/kg		10 mg/kg		0.001 %		



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
			77536-68-6 77536-67-5 12001-29-5							
Total:								0.0498 %		

Key

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

Classification of sample: TP-B6

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

Sample details

Sample Name:	LoW Code:	
TP-B6	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.0-2.0 m		
Moisture content:		
24%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 24% 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	antimony { antimony trioxide }				3.2 mg/kg	1.197	3.831 mg/kg	0.000383 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				35 mg/kg	1.32	46.211 mg/kg	0.00462 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				4.1 mg/kg	3.22	13.201 mg/kg	0.00132 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				1.2 mg/kg	1.142	1.371 mg/kg	0.000137 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				15 mg/kg	1.462	21.923 mg/kg	0.00219 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				120 mg/kg	1.126	135.107 mg/kg	0.0135 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	410 mg/kg	1.56	639.524 mg/kg	0.041 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				2 mg/kg	1.353	2.707 mg/kg	0.000271 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				4.7 mg/kg	1.5	7.051 mg/kg	0.000705 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				58 mg/kg	2.976	172.623 mg/kg	0.0173 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				0.92 mg/kg	2.554	2.349 mg/kg	0.000235 %			
	034-002-00-8										
13	zinc { zinc chromate }				120 mg/kg	2.774	332.898 mg/kg	0.0333 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								



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#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number								
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4								
16		benzene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2								
17		toluene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3								
18		ethylbenzene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4								
19		xylene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-022-00-9	202-422-2 [1]	95-47-6 [1]								
			203-396-5 [2]	106-42-3 [2]								
			203-576-3 [3]	108-38-3 [3]								
			215-535-7 [4]	1330-20-7 [4]								
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5										
21		pH				7.7 pH		7.7	pH	7.7 pH		
				PH								
22		naphthalene				1.1 mg/kg		1.1	mg/kg	0.00011 %		
		601-052-00-2	202-049-5	91-20-3								
23		acenaphthylene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
24		acenaphthene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
25		fluorene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
26		phenanthrene				1.7 mg/kg		1.7	mg/kg	0.00017 %		
			201-581-5	85-01-8								
27		anthracene				0.11 mg/kg		0.11	mg/kg	0.000011 %		
			204-371-1	120-12-7								
28		fluoranthene				1.5 mg/kg		1.5	mg/kg	0.00015 %		
			205-912-4	206-44-0								
29		pyrene				1.3 mg/kg		1.3	mg/kg	0.00013 %		
			204-927-3	129-00-0								
30		benzo[a]anthracene				0.33 mg/kg		0.33	mg/kg	0.000033 %		
		601-033-00-9	200-280-6	56-55-3								
31		chrysene				0.47 mg/kg		0.47	mg/kg	0.000047 %		
		601-048-00-0	205-923-4	218-01-9								
32		benzo[b]fluoranthene				0.37 mg/kg		0.37	mg/kg	0.000037 %		
		601-034-00-4	205-911-9	205-99-2								
33		benzo[k]fluoranthene				0.1 mg/kg		0.1	mg/kg	0.00001 %		
		601-036-00-5	205-916-6	207-08-9								
34		benzo[a]pyrene; benzo[def]chrysene				0.25 mg/kg		0.25	mg/kg	0.000025 %		
		601-032-00-3	200-028-5	50-32-8								
35		indeno[123-cd]pyrene				0.12 mg/kg		0.12	mg/kg	0.000012 %		
			205-893-2	193-39-5								
36		dibenz[a,h]anthracene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3								
37		benzo[ghi]perylene				0.2 mg/kg		0.2	mg/kg	0.00002 %		
			205-883-8	191-24-2								
38		phenol				<0.3 mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2								
39		polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		602-039-00-4	215-648-1	1336-36-3								
Total:										0.117 %		

Key

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

Classification of sample: TP-B6[2]

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

Sample details

Sample Name:	LoW Code:
TP-B6[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.0-1.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
29%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 29% 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	antimony { antimony trioxide }				2.5	mg/kg	1.197	2.993	mg/kg	0.000299 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				32	mg/kg	1.32	42.25	mg/kg	0.00423 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				2.4	mg/kg	3.22	7.728	mg/kg	0.000773 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.4	mg/kg	1.142	1.599	mg/kg	0.00016 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				16	mg/kg	1.462	23.385	mg/kg	0.00234 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				84	mg/kg	1.126	94.575	mg/kg	0.00946 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	400	mg/kg	1.56	623.926	mg/kg	0.04 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				1.4	mg/kg	1.353	1.895	mg/kg	0.000189 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				3.2	mg/kg	1.5	4.801	mg/kg	0.00048 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				47	mg/kg	2.976	139.884	mg/kg	0.014 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.7	mg/kg	2.554	1.788	mg/kg	0.000179 %		
	034-002-00-8											
13	zinc { zinc chromate }				110	mg/kg	2.774	305.156	mg/kg	0.0305 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene 601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene 601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH PH				8.1 pH		8.1 pH	8.1 pH		
22	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	acenaphthylene 205-917-1		208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene 201-469-6		83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	fluorene 201-695-5		86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	phenanthrene 201-581-5		85-01-8		0.67 mg/kg		0.67 mg/kg	0.000067 %		
27	anthracene 204-371-1		120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	fluoranthene 205-912-4		206-44-0		0.35 mg/kg		0.35 mg/kg	0.000035 %		
29	pyrene 204-927-3		129-00-0		0.22 mg/kg		0.22 mg/kg	0.000022 %		
30	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	indeno[123-cd]pyrene 205-893-2		193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	benzo[ghi]perylene 205-883-8		191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	phenol 604-001-00-2	203-632-7	108-95-2		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB 602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
40	asbestos 650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
			77536-68-6 77536-67-5 12001-29-5							
Total:								0.105 %		

Key

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

Appendix A: Classifier defined and non CLP determinands

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

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

■ **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

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

CLP index number: 601-023-00-4

Description/Comments:

Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)

Additional Hazard Statement(s): Carc. 2 H351

Reason for additional Hazards Statement(s)/Risk Phrase(s):

03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

■ **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s)/Risk Phrase(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

■ **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

polychlorobiphenyls; PCB (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4

Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s)/Risk Phrase(s):

29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings

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

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

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. 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

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

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

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

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments

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. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight

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.

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018

HazWasteOnline Classification Engine Version: 2019.256.4006.8076 (13 Sep 2019)

HazWasteOnline Database: 2019.256.4006.8076 (13 Sep 2019)

This classification utilises the following guidance and legislation:

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

Waste Classification Report



RAKWR-UFLWJ-M23XJ

Job name

19-245 PW Asbestos Pits

Description/Comments

Project

19-245

Site

Player Wills

Related Documents

#	Name	Description
None		

Waste Stream Template

O'Callaghan Moran Waste Stream

Classified by

Name:
Austin Hynes
Date:
06 Nov 2019 17:03 GMT
Telephone:
021 4345366

Company:
O'Callaghan Moran and Associates
Unit 15 Melbourne Business Park
Model Farm Road
Cork

Report

Created by: Austin Hynes
Created date: 06 Nov 2019 17:03 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	TP-A1	0.0-1.0	Non Hazardous		3
2	TP-A1[2]	1.0-2.0	Non Hazardous		6
3	TP-A2	0.0-1.0	Non Hazardous		9
4	TP-A2[2]	1.0-2.0	Non Hazardous		12
5	TP-A3	0.0-1.0	Non Hazardous		15
6	TP-A3[2]	1.0-2.0	Non Hazardous		18
7	TP-A4	0.0-1.0	Non Hazardous		21
8	TP-A4[2]	1.0-2.0	Non Hazardous		24
9	TP-A5	0.0-1.0	Hazardous	HP 7, HP 11	27
10	TP-A5[2]	1.0-2.0	Non Hazardous		30
11	TP-A6	0.0-1.0	Non Hazardous		33
12	TP-A6[2]	1.0-2.0	Non Hazardous		36

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	39
Appendix B: Rationale for selection of metal species	40
Appendix C: Version	41

Classification of sample: TP-A1

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

Sample details

Sample Name:	LoW Code:	
TP-A1	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
21%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 21% 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	antimony { antimony trioxide }				2.3 mg/kg	1.197	2.753 mg/kg	0.000275 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				32 mg/kg	1.32	42.25 mg/kg	0.00423 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				3.7 mg/kg	3.22	11.914 mg/kg	0.00119 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				1.1 mg/kg	1.142	1.257 mg/kg	0.000126 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				21 mg/kg	1.462	30.693 mg/kg	0.00307 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				130 mg/kg	1.126	146.365 mg/kg	0.0146 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	390 mg/kg	1.56	608.328 mg/kg	0.039 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				1.3 mg/kg	1.353	1.76 mg/kg	0.000176 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				3.9 mg/kg	1.5	5.851 mg/kg	0.000585 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				48 mg/kg	2.976	142.861 mg/kg	0.0143 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %			
	034-002-00-8										
13	zinc { zinc chromate }				140 mg/kg	2.774	388.381 mg/kg	0.0388 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								



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#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number								
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4								
16		benzene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2								
17		toluene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3								
18	●	ethylbenzene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4								
19		xylene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-022-00-9	202-422-2 [1]	95-47-6 [1]								
			203-396-5 [2]	106-42-3 [2]								
			203-576-3 [3]	108-38-3 [3]								
			215-535-7 [4]	1330-20-7 [4]								
20	🧪	cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5										
21	●	pH				8 pH		8	pH	8pH		
				PH								
22		naphthalene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
23	●	acenaphthylene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
24	●	acenaphthene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
25	●	fluorene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
26	●	phenanthrene				0.8 mg/kg		0.8	mg/kg	0.00008 %		
			201-581-5	85-01-8								
27	●	anthracene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7								
28	●	fluoranthene				0.7 mg/kg		0.7	mg/kg	0.00007 %		
			205-912-4	206-44-0								
29	●	pyrene				0.67 mg/kg		0.67	mg/kg	0.000067 %		
			204-927-3	129-00-0								
30		benzo[a]anthracene				0.33 mg/kg		0.33	mg/kg	0.000033 %		
		601-033-00-9	200-280-6	56-55-3								
31		chrysene				0.36 mg/kg		0.36	mg/kg	0.000036 %		
		601-048-00-0	205-923-4	218-01-9								
32		benzo[b]fluoranthene				0.47 mg/kg		0.47	mg/kg	0.000047 %		
		601-034-00-4	205-911-9	205-99-2								
33		benzo[k]fluoranthene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9								
34		benzo[a]pyrene; benzo[def]chrysene				0.3 mg/kg		0.3	mg/kg	0.00003 %		
		601-032-00-3	200-028-5	50-32-8								
35	●	indeno[123-cd]pyrene				0.13 mg/kg		0.13	mg/kg	0.000013 %		
			205-893-2	193-39-5								
36		dibenz[a,h]anthracene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3								
37	●	benzo[ghi]perylene				0.15 mg/kg		0.15	mg/kg	0.000015 %		
			205-883-8	191-24-2								
38		phenol				<0.3 mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2								
39	●	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		602-039-00-4	215-648-1	1336-36-3								
Total:										0.118 %		

Key

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

Classification of sample: TP-A1[2]

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

Sample details

Sample Name:	LoW Code:
TP-A1[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-2.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
16%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **16%** 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	antimony { antimony trioxide }				<2	mg/kg	1.197	<2.394	mg/kg	<0.000239 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				16	mg/kg	1.32	21.125	mg/kg	0.00211 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				0.81	mg/kg	3.22	2.608	mg/kg	0.000261 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.7	mg/kg	1.142	1.942	mg/kg	0.000194 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				14	mg/kg	1.462	20.462	mg/kg	0.00205 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				26	mg/kg	1.126	29.273	mg/kg	0.00293 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	47	mg/kg	1.56	73.311	mg/kg	0.0047 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.15	mg/kg	1.353	0.203	mg/kg	0.0000203 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				3.6	mg/kg	1.5	5.401	mg/kg	0.00054 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				35	mg/kg	2.976	104.169	mg/kg	0.0104 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.43	mg/kg	2.554	1.098	mg/kg	0.00011 %		
	034-002-00-8											
13	zinc { zinc chromate }				59	mg/kg	2.774	163.675	mg/kg	0.0164 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
16	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
17	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
19	xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
21	pH				8.3 pH		8.3 pH	8.3 pH		
			PH							
22	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
24	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
25	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
26	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
27	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
28	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
29	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
30	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
31	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
32	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
33	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
34	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
35	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
37	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.0413 %		

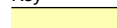


environmental management for business

HazWasteOnline™

Report created by Austin Hynes on 06 Nov 2019

Key

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

Classification of sample: TP-A2

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

Sample details

Sample Name:	LoW Code:	
TP-A2	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
7.3%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 7.3% 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	antimony { antimony trioxide }				3.1 mg/kg	1.197	3.711 mg/kg	0.000371 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				31 mg/kg	1.32	40.93 mg/kg	0.00409 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				3.7 mg/kg	3.22	11.914 mg/kg	0.00119 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				1 mg/kg	1.142	1.142 mg/kg	0.000114 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				26 mg/kg	1.462	38 mg/kg	0.0038 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				67 mg/kg	1.126	75.435 mg/kg	0.00754 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	180 mg/kg	1.56	280.767 mg/kg	0.018 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				0.81 mg/kg	1.353	1.096 mg/kg	0.00011 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				4.2 mg/kg	1.5	6.301 mg/kg	0.00063 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				44 mg/kg	2.976	130.956 mg/kg	0.0131 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %			<LOD
	034-002-00-8										
13	zinc { zinc chromate }				150 mg/kg	2.774	416.122 mg/kg	0.0416 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								



environmental management for business

HazWasteOnline™

Report created by Austin Hynes on 06 Nov 2019

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number								
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4								
16		benzene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2								
17		toluene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3								
18	●	ethylbenzene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4								
19		xylene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-022-00-9	202-422-2 [1]	95-47-6 [1]								
			203-396-5 [2]	106-42-3 [2]								
			203-576-3 [3]	108-38-3 [3]								
			215-535-7 [4]	1330-20-7 [4]								
20	🧪	cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5										
21	●	pH				10.2 pH		10.2	pH	10.2 pH		
				PH								
22		naphthalene				0.13 mg/kg		0.13	mg/kg	0.000013 %		
		601-052-00-2	202-049-5	91-20-3								
23	●	acenaphthylene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
24	●	acenaphthene				0.16 mg/kg		0.16	mg/kg	0.000016 %		
			201-469-6	83-32-9								
25	●	fluorene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
26	●	phenanthrene				1.8 mg/kg		1.8	mg/kg	0.00018 %		
			201-581-5	85-01-8								
27	●	anthracene				0.21 mg/kg		0.21	mg/kg	0.000021 %		
			204-371-1	120-12-7								
28	●	fluoranthene				2.1 mg/kg		2.1	mg/kg	0.00021 %		
			205-912-4	206-44-0								
29	●	pyrene				2 mg/kg		2	mg/kg	0.0002 %		
			204-927-3	129-00-0								
30		benzo[a]anthracene				0.87 mg/kg		0.87	mg/kg	0.000087 %		
		601-033-00-9	200-280-6	56-55-3								
31		chrysene				1.1 mg/kg		1.1	mg/kg	0.00011 %		
		601-048-00-0	205-923-4	218-01-9								
32		benzo[b]fluoranthene				1.2 mg/kg		1.2	mg/kg	0.00012 %		
		601-034-00-4	205-911-9	205-99-2								
33		benzo[k]fluoranthene				0.29 mg/kg		0.29	mg/kg	0.000029 %		
		601-036-00-5	205-916-6	207-08-9								
34		benzo[a]pyrene; benzo[def]chrysene				0.73 mg/kg		0.73	mg/kg	0.000073 %		
		601-032-00-3	200-028-5	50-32-8								
35	●	indeno[123-cd]pyrene				0.35 mg/kg		0.35	mg/kg	0.000035 %		
			205-893-2	193-39-5								
36		dibenz[a,h]anthracene				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3								
37	●	benzo[ghi]perylene				0.45 mg/kg		0.45	mg/kg	0.000045 %		
			205-883-8	191-24-2								
38		phenol				<0.3 mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2								
39	●	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		602-039-00-4	215-648-1	1336-36-3								
Total:										0.093 %		

Key

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

Classification of sample: TP-A2[2]

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

Sample details

Sample Name:	LoW Code:
TP-A2[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-2.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
11%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **11% 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	antimony { antimony trioxide }				<2 mg/kg	1.197	<2.394 mg/kg	<0.000239 %			<LOD
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				26 mg/kg	1.32	34.328 mg/kg	0.00343 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				0.68 mg/kg	3.22	2.19 mg/kg	0.000219 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				1.8 mg/kg	1.142	2.056 mg/kg	0.000206 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				13 mg/kg	1.462	19 mg/kg	0.0019 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	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								
8	lead { lead chromate }			1	38 mg/kg	1.56	59.273 mg/kg	0.0038 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				0.2 mg/kg	1.353	0.271 mg/kg	0.0000271 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				5 mg/kg	1.5	7.501 mg/kg	0.00075 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				35 mg/kg	2.976	104.169 mg/kg	0.0104 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				0.32 mg/kg	2.554	0.817 mg/kg	0.0000817 %			
	034-002-00-8										
13	zinc { zinc chromate }				51 mg/kg	2.774	141.481 mg/kg	0.0141 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								



environmental management for business

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value		MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number										
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD	
		603-181-00-X	216-653-1	1634-04-4										
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD	
		601-020-00-8	200-753-7	71-43-2										
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD	
		601-021-00-3	203-625-9	108-88-3										
18	●	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD	
		601-023-00-4	202-849-4	100-41-4										
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD	
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]										
20	🧪	cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD	
		006-007-00-5												
21	●	pH				8.5	pH		8.5	pH	8.5 pH			
				PH										
22		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
		601-052-00-2	202-049-5	91-20-3										
23	●	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
			205-917-1	208-96-8										
24	●	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
			201-469-6	83-32-9										
25	●	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
			201-695-5	86-73-7										
26	●	phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
			201-581-5	85-01-8										
27	●	anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
			204-371-1	120-12-7										
28	●	fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
			205-912-4	206-44-0										
29	●	pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
			204-927-3	129-00-0										
30		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
		601-033-00-9	200-280-6	56-55-3										
31		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
		601-048-00-0	205-923-4	218-01-9										
32		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
		601-034-00-4	205-911-9	205-99-2										
33		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
		601-036-00-5	205-916-6	207-08-9										
34		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
		601-032-00-3	200-028-5	50-32-8										
35	●	indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
			205-893-2	193-39-5										
36		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
		601-041-00-2	200-181-8	53-70-3										
37	●	benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
			205-883-8	191-24-2										
38		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD	
		604-001-00-2	203-632-7	108-95-2										
39	●	polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
		602-039-00-4	215-648-1	1336-36-3										
Total:											0.0397 %			



environmental management for business

HazWasteOnline™

Report created by Austin Hynes on 06 Nov 2019

Key

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

Classification of sample: TP-A3

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

Sample details

Sample Name:	LoW Code:	
TP-A3	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
20%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 20% No Moisture Correction applied (MC)

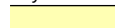
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	antimony { antimony trioxide }				2.6 mg/kg	1.197	3.112 mg/kg	0.000311 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				40 mg/kg	1.32	52.813 mg/kg	0.00528 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				4.2 mg/kg	3.22	13.523 mg/kg	0.00135 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				1.3 mg/kg	1.142	1.485 mg/kg	0.000149 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				23 mg/kg	1.462	33.616 mg/kg	0.00336 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				110 mg/kg	1.126	123.848 mg/kg	0.0124 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	370 mg/kg	1.56	577.132 mg/kg	0.037 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				1.8 mg/kg	1.353	2.436 mg/kg	0.000244 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				5.9 mg/kg	1.5	8.851 mg/kg	0.000885 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				52 mg/kg	2.976	154.766 mg/kg	0.0155 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				1.1 mg/kg	2.554	2.809 mg/kg	0.000281 %			
	034-002-00-8										
13	zinc { zinc chromate }				140 mg/kg	2.774	388.381 mg/kg	0.0388 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								



environmental management for business

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number								
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		603-181-00-X	216-653-1	1634-04-4								
16		benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-020-00-8	200-753-7	71-43-2								
17		toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-021-00-3	203-625-9	108-88-3								
18	●	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-023-00-4	202-849-4	100-41-4								
19		xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-022-00-9	202-422-2 [1]	95-47-6 [1]								
			203-396-5 [2]	106-42-3 [2]								
			203-576-3 [3]	108-38-3 [3]								
			215-535-7 [4]	1330-20-7 [4]								
20	🧪	cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD	
		006-007-00-5										
21	●	pH				7.9 pH		7.9 pH	7.9 pH			
				PH								
22		naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-052-00-2	202-049-5	91-20-3								
23	●	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-917-1	208-96-8								
24	●	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			201-469-6	83-32-9								
25	●	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			201-695-5	86-73-7								
26	●	phenanthrene				1.1 mg/kg		1.1 mg/kg	0.00011 %			
			201-581-5	85-01-8								
27	●	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			204-371-1	120-12-7								
28	●	fluoranthene				0.85 mg/kg		0.85 mg/kg	0.000085 %			
			205-912-4	206-44-0								
29	●	pyrene				0.78 mg/kg		0.78 mg/kg	0.000078 %			
			204-927-3	129-00-0								
30		benzo[a]anthracene				0.26 mg/kg		0.26 mg/kg	0.000026 %			
		601-033-00-9	200-280-6	56-55-3								
31		chrysene				0.28 mg/kg		0.28 mg/kg	0.000028 %			
		601-048-00-0	205-923-4	218-01-9								
32		benzo[b]fluoranthene				0.27 mg/kg		0.27 mg/kg	0.000027 %			
		601-034-00-4	205-911-9	205-99-2								
33		benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-036-00-5	205-916-6	207-08-9								
34		benzo[a]pyrene; benzo[def]chrysene				0.14 mg/kg		0.14 mg/kg	0.000014 %			
		601-032-00-3	200-028-5	50-32-8								
35	●	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-893-2	193-39-5								
36		dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-041-00-2	200-181-8	53-70-3								
37	●	benzo[ghi]perylene				0.1 mg/kg		0.1 mg/kg	0.00001 %			
			205-883-8	191-24-2								
38		phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD	
		604-001-00-2	203-632-7	108-95-2								
39	●	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		602-039-00-4	215-648-1	1336-36-3								
Total:									0.117 %			

Key

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

Classification of sample: TP-A3[2]

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

Sample details

Sample Name:	LoW Code:	
TP-A3[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.0-2.0 m		
Moisture content:		
14%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: **14%** 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	antimony { antimony trioxide }				<2	mg/kg	1.197	<2.394	mg/kg	<0.000239 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				22	mg/kg	1.32	29.047	mg/kg	0.0029 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				0.87	mg/kg	3.22	2.801	mg/kg	0.00028 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				2.1	mg/kg	1.142	2.399	mg/kg	0.00024 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				16	mg/kg	1.462	23.385	mg/kg	0.00234 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				35	mg/kg	1.126	39.406	mg/kg	0.00394 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	47	mg/kg	1.56	73.311	mg/kg	0.0047 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.28	mg/kg	1.353	0.379	mg/kg	0.0000379 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				4.9	mg/kg	1.5	7.351	mg/kg	0.000735 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				48	mg/kg	2.976	142.861	mg/kg	0.0143 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				0.42	mg/kg	2.554	1.073	mg/kg	0.000107 %		
	034-002-00-8											
13	zinc { zinc chromate }				73	mg/kg	2.774	202.513	mg/kg	0.0203 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
16	benzene	601-020-00-8	200-753-7	71-43-2	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
17	toluene	601-021-00-3	203-625-9	108-88-3	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
19	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
21	pH		PH		8.2 pH		8.2 pH	8.2 pH		
22	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	acenaphthylene		205-917-1	208-96-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	acenaphthene		201-469-6	83-32-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	fluorene		201-695-5	86-73-7	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	phenanthrene		201-581-5	85-01-8	0.25 mg/kg		0.25 mg/kg	0.000025 %		
27	anthracene		204-371-1	120-12-7	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	fluoranthene		205-912-4	206-44-0	0.12 mg/kg		0.12 mg/kg	0.000012 %		
29	pyrene		204-927-3	129-00-0	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	indeno[123-cd]pyrene		205-893-2	193-39-5	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
36	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
37	benzo[ghi]perylene		205-883-8	191-24-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
38	phenol	604-001-00-2	203-632-7	108-95-2	<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
39	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0515 %		

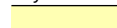


environmental management for business

HazWasteOnline™

Report created by Austin Hynes on 06 Nov 2019

Key

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

Classification of sample: TP-A4

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

Sample details

Sample Name:	LoW Code:	
TP-A4	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
16%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 16% No Moisture Correction applied (MC)

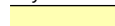
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	antimony { antimony trioxide }				2.2 mg/kg	1.197	2.634 mg/kg	0.000263 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				33 mg/kg	1.32	43.571 mg/kg	0.00436 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				2.3 mg/kg	3.22	7.406 mg/kg	0.000741 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				1.2 mg/kg	1.142	1.371 mg/kg	0.000137 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				16 mg/kg	1.462	23.385 mg/kg	0.00234 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				89 mg/kg	1.126	100.204 mg/kg	0.01 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	250 mg/kg	1.56	389.954 mg/kg	0.025 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				1.2 mg/kg	1.353	1.624 mg/kg	0.000162 %			
	080-010-00-X	231-299-8	7487-94-7								
10	molybdenum { molybdenum(VI) oxide }				4.8 mg/kg	1.5	7.201 mg/kg	0.00072 %			
	042-001-00-9	215-204-7	1313-27-5								
11	nickel { nickel chromate }				45 mg/kg	2.976	133.932 mg/kg	0.0134 %			
	028-035-00-7	238-766-5	14721-18-7								
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				0.86 mg/kg	2.554	2.196 mg/kg	0.00022 %			
	034-002-00-8										
13	zinc { zinc chromate }				100 mg/kg	2.774	277.415 mg/kg	0.0277 %			
	024-007-00-3										
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								



environmental management for business

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number								
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		603-181-00-X	216-653-1	1634-04-4								
16		benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-020-00-8	200-753-7	71-43-2								
17		toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-021-00-3	203-625-9	108-88-3								
18	●	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-023-00-4	202-849-4	100-41-4								
19		xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-022-00-9	202-422-2 [1]	95-47-6 [1]								
			203-396-5 [2]	106-42-3 [2]								
			203-576-3 [3]	108-38-3 [3]								
			215-535-7 [4]	1330-20-7 [4]								
20	🧪	cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD	
		006-007-00-5										
21	●	pH				7.6 pH		7.6 pH	7.6 pH			
				PH								
22		naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-052-00-2	202-049-5	91-20-3								
23	●	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-917-1	208-96-8								
24	●	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			201-469-6	83-32-9								
25	●	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			201-695-5	86-73-7								
26	●	phenanthrene				0.71 mg/kg		0.71 mg/kg	0.000071 %			
			201-581-5	85-01-8								
27	●	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			204-371-1	120-12-7								
28	●	fluoranthene				0.27 mg/kg		0.27 mg/kg	0.000027 %			
			205-912-4	206-44-0								
29	●	pyrene				0.23 mg/kg		0.23 mg/kg	0.000023 %			
			204-927-3	129-00-0								
30		benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-033-00-9	200-280-6	56-55-3								
31		chrysene				0.1 mg/kg		0.1 mg/kg	0.00001 %			
		601-048-00-0	205-923-4	218-01-9								
32		benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-034-00-4	205-911-9	205-99-2								
33		benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-036-00-5	205-916-6	207-08-9								
34		benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-032-00-3	200-028-5	50-32-8								
35	●	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-893-2	193-39-5								
36		dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-041-00-2	200-181-8	53-70-3								
37	●	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-883-8	191-24-2								
38		phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD	
		604-001-00-2	203-632-7	108-95-2								
39	●	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		602-039-00-4	215-648-1	1336-36-3								
Total:									0.0866 %			

Key

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

Classification of sample: TP-A4[2]

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

Sample details

Sample Name:	TP-A4[2]	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	1.0-2.0 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	18%	Entry:	
	(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 18% 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	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4	2	mg/kg	1.197	2.394	mg/kg	0.000239 %		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	32	mg/kg	1.32	42.25	mg/kg	0.00423 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2	4.5	mg/kg	3.22	14.489	mg/kg	0.00145 %		
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 }	215-160-9	1308-38-9		16	mg/kg	1.462	23.385	mg/kg	0.00234 %		
6	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	91	mg/kg	1.126	102.456	mg/kg	0.0102 %		
8	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 %	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	1.2	mg/kg	1.353	1.624	mg/kg	0.000162 %		
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5	5.2	mg/kg	1.5	7.801	mg/kg	0.00078 %		
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7	46	mg/kg	2.976	136.908	mg/kg	0.0137 %		
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }	034-002-00-8			0.81	mg/kg	2.554	2.068	mg/kg	0.000207 %		
13	zinc { zinc chromate }	024-007-00-3			110	mg/kg	2.774	305.156	mg/kg	0.0305 %		
14	TPH (C6 to C40) petroleum group			TPH	<10	mg/kg		<10	mg/kg	<0.001 %		<LOD



environmental management for business

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4								
16	benzene				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2								
17	toluene				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3								
18	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4								
19	xylene				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.5 mg/kg	1.884	0.942 mg/kg		0.0000942 %		
	006-007-00-5										
21	pH				8.4 pH		8.4 pH		8.4 pH		
			PH								
22	naphthalene				0.25 mg/kg		0.25 mg/kg		0.000025 %		
	601-052-00-2	202-049-5	91-20-3								
23	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
		205-917-1	208-96-8								
24	acenaphthene				0.11 mg/kg		0.11 mg/kg		0.000011 %		
		201-469-6	83-32-9								
25	fluorene				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
		201-695-5	86-73-7								
26	phenanthrene				0.98 mg/kg		0.98 mg/kg		0.000098 %		
		201-581-5	85-01-8								
27	anthracene				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
		204-371-1	120-12-7								
28	fluoranthene				0.91 mg/kg		0.91 mg/kg		0.000091 %		
		205-912-4	206-44-0								
29	pyrene				0.74 mg/kg		0.74 mg/kg		0.000074 %		
		204-927-3	129-00-0								
30	benzo[a]anthracene				0.24 mg/kg		0.24 mg/kg		0.000024 %		
	601-033-00-9	200-280-6	56-55-3								
31	chrysene				0.29 mg/kg		0.29 mg/kg		0.000029 %		
	601-048-00-0	205-923-4	218-01-9								
32	benzo[b]fluoranthene				0.28 mg/kg		0.28 mg/kg		0.000028 %		
	601-034-00-4	205-911-9	205-99-2								
33	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9								
34	benzo[a]pyrene; benzo[def]chrysene				0.14 mg/kg		0.14 mg/kg		0.000014 %		
	601-032-00-3	200-028-5	50-32-8								
35	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
		205-893-2	193-39-5								
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3								
37	benzo[ghi]perylene				0.1 mg/kg		0.1 mg/kg		0.00001 %		
		205-883-8	191-24-2								
38	phenol				<0.3 mg/kg		<0.3 mg/kg		<0.00003 %		<LOD
	604-001-00-2	203-632-7	108-95-2								
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg		<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.0927 %		

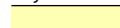


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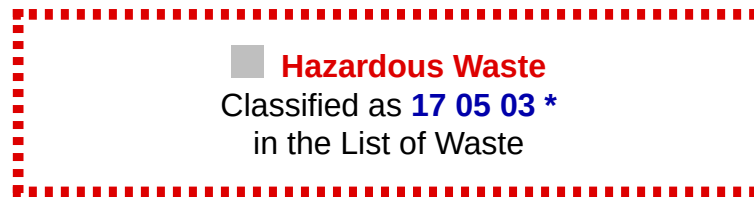
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Key

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

Classification of sample: TP-A5



Sample details

Sample Name:	TP-A5	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.0-1.0 m	Entry:		17 05 03 * (Soil and stones containing hazardous substances)
Moisture content:	17% (no correction)			

Hazard properties

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.4%)

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.4%)

Determinands

Moisture content: 17% 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	antimony { antimony trioxide }				2.4 mg/kg	1.197	2.873 mg/kg	0.000287 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				36 mg/kg	1.32	47.532 mg/kg	0.00475 %			
	033-003-00-0	215-481-4	1327-53-3								
3	boron { diboron trioxide; boric oxide }				5.3 mg/kg	3.22	17.065 mg/kg	0.00171 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				0.99 mg/kg	1.142	1.131 mg/kg	0.000113 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide }				19 mg/kg	1.462	27.77 mg/kg	0.00278 %			
		215-160-9	1308-38-9								
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	copper { dicopper oxide; copper (I) oxide }				99 mg/kg	1.126	111.463 mg/kg	0.0111 %			
	029-002-00-X	215-270-7	1317-39-1								



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#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
8	lead { lead chromate }			1	480	mg/kg	1.56	748.711	mg/kg	0.048 %		
	082-004-00-2	231-846-0	7758-97-6									
9	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									
10	molybdenum { molybdenum(VI) oxide }				4.4	mg/kg	1.5	6.601	mg/kg	0.00066 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				42	mg/kg	2.976	125.003	mg/kg	0.0125 %		
	028-035-00-7	238-766-5	14721-18-7									
12	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											
13	zinc { zinc chromate }				130	mg/kg	2.774	360.639	mg/kg	0.0361 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group		TPH		14000	mg/kg		14000	mg/kg	1.4 %		
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
16	benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
17	toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
18	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
19	xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
20	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
	006-007-00-5											
21	pH		PH		7.7	pH		7.7	pH	7.7 pH		
22	naphthalene				0.31	mg/kg		0.31	mg/kg	0.000031 %		
	601-052-00-2	202-049-5	91-20-3									
23	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
24	acenaphthene				0.28	mg/kg		0.28	mg/kg	0.000028 %		
		201-469-6	83-32-9									
25	fluorene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
		201-695-5	86-73-7									
26	phenanthrene				2.6	mg/kg		2.6	mg/kg	0.00026 %		
		201-581-5	85-01-8									
27	anthracene				0.33	mg/kg		0.33	mg/kg	0.000033 %		
		204-371-1	120-12-7									
28	fluoranthene				4	mg/kg		4	mg/kg	0.0004 %		
		205-912-4	206-44-0									
29	pyrene				3.6	mg/kg		3.6	mg/kg	0.00036 %		
		204-927-3	129-00-0									
30	benzo[a]anthracene				1.8	mg/kg		1.8	mg/kg	0.00018 %		
	601-033-00-9	200-280-6	56-55-3									
31	chrysene				2.3	mg/kg		2.3	mg/kg	0.00023 %		
	601-048-00-0	205-923-4	218-01-9									
32	benzo[b]fluoranthene				2.3	mg/kg		2.3	mg/kg	0.00023 %		
	601-034-00-4	205-911-9	205-99-2									
33	benzo[k]fluoranthene				0.91	mg/kg		0.91	mg/kg	0.000091 %		
	601-036-00-5	205-916-6	207-08-9									



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#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
34	benzo[a]pyrene; benzo[def]chrysene				1.7 mg/kg		1.7 mg/kg	0.00017 %		
	601-032-00-3	200-028-5	50-32-8							
35	indeno[123-cd]pyrene				1.1 mg/kg		1.1 mg/kg	0.00011 %		
		205-893-2	193-39-5							
36	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
37	benzo[ghi]perylene				0.87 mg/kg		0.87 mg/kg	0.000087 %		
		205-883-8	191-24-2							
38	phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
39	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								1.521 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.4%)

Classification of sample: TP-A5[2]

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

Sample details

Sample Name:	LoW Code:
TP-A5[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-2.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
32%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 32% No Moisture Correction applied (MC)

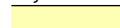
#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				2.7	mg/kg	1.197	3.232	mg/kg	0.000323 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				32	mg/kg	1.32	42.25	mg/kg	0.00423 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				2.7	mg/kg	3.22	8.694	mg/kg	0.000869 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.6	mg/kg	1.142	1.828	mg/kg	0.000183 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				120	mg/kg	1.126	135.107	mg/kg	0.0135 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	350	mg/kg	1.56	545.935	mg/kg	0.035 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				1.3	mg/kg	1.353	1.76	mg/kg	0.000176 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				5.1	mg/kg	1.5	7.651	mg/kg	0.000765 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				51	mg/kg	2.976	151.79	mg/kg	0.0152 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				0.48	mg/kg	2.554	1.226	mg/kg	0.000123 %		
	034-002-00-8											
13	zinc { zinc chromate }				140	mg/kg	2.774	388.381	mg/kg	0.0388 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									



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#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value		MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number										
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD	
		603-181-00-X	216-653-1	1634-04-4										
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD	
		601-020-00-8	200-753-7	71-43-2										
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD	
		601-021-00-3	203-625-9	108-88-3										
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD	
		601-023-00-4	202-849-4	100-41-4										
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD	
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]										
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD	
		006-007-00-5												
21		pH				7.8	pH		7.8	pH	7.8 pH			
				PH										
22		naphthalene				0.16	mg/kg		0.16	mg/kg	0.000016 %			
		601-052-00-2	202-049-5	91-20-3										
23		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
			205-917-1	208-96-8										
24		acenaphthene				0.2	mg/kg		0.2	mg/kg	0.00002 %			
			201-469-6	83-32-9										
25		fluorene				0.12	mg/kg		0.12	mg/kg	0.000012 %			
			201-695-5	86-73-7										
26		phenanthrene				2	mg/kg		2	mg/kg	0.0002 %			
			201-581-5	85-01-8										
27		anthracene				0.2	mg/kg		0.2	mg/kg	0.00002 %			
			204-371-1	120-12-7										
28		fluoranthene				1.9	mg/kg		1.9	mg/kg	0.00019 %			
			205-912-4	206-44-0										
29		pyrene				1.9	mg/kg		1.9	mg/kg	0.00019 %			
			204-927-3	129-00-0										
30		benzo[a]anthracene				0.8	mg/kg		0.8	mg/kg	0.00008 %			
		601-033-00-9	200-280-6	56-55-3										
31		chrysene				1	mg/kg		1	mg/kg	0.0001 %			
		601-048-00-0	205-923-4	218-01-9										
32		benzo[b]fluoranthene				1.1	mg/kg		1.1	mg/kg	0.00011 %			
		601-034-00-4	205-911-9	205-99-2										
33		benzo[k]fluoranthene				0.3	mg/kg		0.3	mg/kg	0.00003 %			
		601-036-00-5	205-916-6	207-08-9										
34		benzo[a]pyrene; benzo[def]chrysene				0.66	mg/kg		0.66	mg/kg	0.000066 %			
		601-032-00-3	200-028-5	50-32-8										
35		indeno[123-cd]pyrene				0.35	mg/kg		0.35	mg/kg	0.000035 %			
			205-893-2	193-39-5										
36		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
		601-041-00-2	200-181-8	53-70-3										
37		benzo[ghi]perylene				0.35	mg/kg		0.35	mg/kg	0.000035 %			
			205-883-8	191-24-2										
38		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD	
		604-001-00-2	203-632-7	108-95-2										
39		polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD	
		602-039-00-4	215-648-1	1336-36-3										
Total:											0.114 %			

Key

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

Classification of sample: TP-A6

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

Sample details

Sample Name:	LoW Code:	
TP-A6	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.0-1.0 m		
Moisture content:		
13%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 13% 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	antimony { antimony trioxide }				7.1 mg/kg	1.197	8.499 mg/kg	0.00085 %		
	051-005-00-X	215-175-0	1309-64-4							
2	arsenic { arsenic trioxide }				41 mg/kg	1.32	54.133 mg/kg	0.00541 %		
	033-003-00-0	215-481-4	1327-53-3							
3	boron { diboron trioxide; boric oxide }				2.4 mg/kg	3.22	7.728 mg/kg	0.000773 %		
	005-008-00-8	215-125-8	1303-86-2							
4	cadmium { cadmium oxide }				0.93 mg/kg	1.142	1.062 mg/kg	0.000106 %		
	048-002-00-0	215-146-2	1306-19-0							
5	chromium in chromium(III) compounds { chromium(III) oxide }				16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
		215-160-9	1308-38-9							
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
7	copper { dicopper oxide; copper (I) oxide }				110 mg/kg	1.126	123.848 mg/kg	0.0124 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	330 mg/kg	1.56	514.739 mg/kg	0.033 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				1.5 mg/kg	1.353	2.03 mg/kg	0.000203 %		
	080-010-00-X	231-299-8	7487-94-7							
10	molybdenum { molybdenum(VI) oxide }				6.3 mg/kg	1.5	9.451 mg/kg	0.000945 %		
	042-001-00-9	215-204-7	1313-27-5							
11	nickel { nickel chromate }				55 mg/kg	2.976	163.695 mg/kg	0.0164 %		
	028-035-00-7	238-766-5	14721-18-7							
12	selenium { selenium compounds with the exception of cadmium selenide and those specified elsewhere in this Annex }				1.6 mg/kg	2.554	4.086 mg/kg	0.000409 %		
	034-002-00-8									
13	zinc { zinc chromate }				160 mg/kg	2.774	443.863 mg/kg	0.0444 %		
	024-007-00-3									
14	TPH (C6 to C40) petroleum group				240 mg/kg		240 mg/kg	0.024 %		
			TPH							



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#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number								
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		603-181-00-X	216-653-1	1634-04-4								
16		benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-020-00-8	200-753-7	71-43-2								
17		toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-021-00-3	203-625-9	108-88-3								
18	●	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-023-00-4	202-849-4	100-41-4								
19		xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-022-00-9	202-422-2 [1]	95-47-6 [1]								
			203-396-5 [2]	106-42-3 [2]								
			203-576-3 [3]	108-38-3 [3]								
			215-535-7 [4]	1330-20-7 [4]								
20	🧪	cyanides { ● salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD	
		006-007-00-5										
21	●	pH				8.9 pH		8.9 pH	8.9 pH			
				PH								
22		naphthalene				0.38 mg/kg		0.38 mg/kg	0.000038 %			
		601-052-00-2	202-049-5	91-20-3								
23	●	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-917-1	208-96-8								
24	●	acenaphthene				0.41 mg/kg		0.41 mg/kg	0.000041 %			
			201-469-6	83-32-9								
25	●	fluorene				0.21 mg/kg		0.21 mg/kg	0.000021 %			
			201-695-5	86-73-7								
26	●	phenanthrene				3.5 mg/kg		3.5 mg/kg	0.00035 %			
			201-581-5	85-01-8								
27	●	anthracene				0.5 mg/kg		0.5 mg/kg	0.00005 %			
			204-371-1	120-12-7								
28	●	fluoranthene				5.1 mg/kg		5.1 mg/kg	0.00051 %			
			205-912-4	206-44-0								
29	●	pyrene				4.7 mg/kg		4.7 mg/kg	0.00047 %			
			204-927-3	129-00-0								
30		benzo[a]anthracene				2.2 mg/kg		2.2 mg/kg	0.00022 %			
		601-033-00-9	200-280-6	56-55-3								
31		chrysene				3.1 mg/kg		3.1 mg/kg	0.00031 %			
		601-048-00-0	205-923-4	218-01-9								
32		benzo[b]fluoranthene				3.5 mg/kg		3.5 mg/kg	0.00035 %			
		601-034-00-4	205-911-9	205-99-2								
33		benzo[k]fluoranthene				1.1 mg/kg		1.1 mg/kg	0.00011 %			
		601-036-00-5	205-916-6	207-08-9								
34		benzo[a]pyrene; benzo[def]chrysene				2.4 mg/kg		2.4 mg/kg	0.00024 %			
		601-032-00-3	200-028-5	50-32-8								
35	●	indeno[123-cd]pyrene				1.4 mg/kg		1.4 mg/kg	0.00014 %			
			205-893-2	193-39-5								
36		dibenz[a,h]anthracene				0.22 mg/kg		0.22 mg/kg	0.000022 %			
		601-041-00-2	200-181-8	53-70-3								
37	●	benzo[ghi]perylene				1.3 mg/kg		1.3 mg/kg	0.00013 %			
			205-883-8	191-24-2								
38		phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD	
		604-001-00-2	203-632-7	108-95-2								
39	●	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		602-039-00-4	215-648-1	1336-36-3								
Total:									0.144 %			

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.024%)

Classification of sample: TP-A6[2]

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

Sample details

Sample Name:	LoW Code:
TP-A6[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0-2.0 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
23%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 23% 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	antimony { antimony trioxide }				2.5	mg/kg	1.197	2.993	mg/kg	0.000299 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				35	mg/kg	1.32	46.211	mg/kg	0.00462 %		
	033-003-00-0	215-481-4	1327-53-3									
3	boron { diboron trioxide; boric oxide }				1.7	mg/kg	3.22	5.474	mg/kg	0.000547 %		
	005-008-00-8	215-125-8	1303-86-2									
4	cadmium { cadmium oxide }				1.7	mg/kg	1.142	1.942	mg/kg	0.000194 %		
	048-002-00-0	215-146-2	1306-19-0									
5	chromium in chromium(III) compounds { chromium(III) oxide }				16	mg/kg	1.462	23.385	mg/kg	0.00234 %		
		215-160-9	1308-38-9									
6	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	copper { dicopper oxide; copper (I) oxide }				88	mg/kg	1.126	99.078	mg/kg	0.00991 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	220	mg/kg	1.56	343.159	mg/kg	0.022 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				0.85	mg/kg	1.353	1.15	mg/kg	0.000115 %		
	080-010-00-X	231-299-8	7487-94-7									
10	molybdenum { molybdenum(VI) oxide }				5.7	mg/kg	1.5	8.551	mg/kg	0.000855 %		
	042-001-00-9	215-204-7	1313-27-5									
11	nickel { nickel chromate }				51	mg/kg	2.976	151.79	mg/kg	0.0152 %		
	028-035-00-7	238-766-5	14721-18-7									
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.53	mg/kg	2.554	1.353	mg/kg	0.000135 %		
	034-002-00-8											
13	zinc { zinc chromate }				130	mg/kg	2.774	360.639	mg/kg	0.0361 %		
	024-007-00-3											
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									

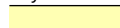


environmental management for business

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number								
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		603-181-00-X	216-653-1	1634-04-4								
16		benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-020-00-8	200-753-7	71-43-2								
17		toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-021-00-3	203-625-9	108-88-3								
18		ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-023-00-4	202-849-4	100-41-4								
19		xylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD	
		006-007-00-5										
21		pH				8 pH		8 pH	8pH			
				PH								
22		naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-052-00-2	202-049-5	91-20-3								
23		acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-917-1	208-96-8								
24		acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			201-469-6	83-32-9								
25		fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			201-695-5	86-73-7								
26		phenanthrene				1.1 mg/kg		1.1 mg/kg	0.00011 %			
			201-581-5	85-01-8								
27		anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			204-371-1	120-12-7								
28		fluoranthene				0.58 mg/kg		0.58 mg/kg	0.000058 %			
			205-912-4	206-44-0								
29		pyrene				0.5 mg/kg		0.5 mg/kg	0.00005 %			
			204-927-3	129-00-0								
30		benzo[a]anthracene				0.17 mg/kg		0.17 mg/kg	0.000017 %			
		601-033-00-9	200-280-6	56-55-3								
31		chrysene				0.26 mg/kg		0.26 mg/kg	0.000026 %			
		601-048-00-0	205-923-4	218-01-9								
32		benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-034-00-4	205-911-9	205-99-2								
33		benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-036-00-5	205-916-6	207-08-9								
34		benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-032-00-3	200-028-5	50-32-8								
35		indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-893-2	193-39-5								
36		dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-041-00-2	200-181-8	53-70-3								
37		benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-883-8	191-24-2								
38		phenol				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD	
		604-001-00-2	203-632-7	108-95-2								
39		polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		602-039-00-4	215-648-1	1336-36-3								
Total:									0.0939 %			



Key

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

Appendix A: Classifier defined and non CLP determinands

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

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

■ **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

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

CLP index number: 601-023-00-4

Description/Comments:

Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)

Additional Hazard Statement(s): Carc. 2 H351

Reason for additional Hazards Statement(s)/Risk Phrase(s):

03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

■ **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s)/Risk Phrase(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

■ **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

• **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4

Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s)/Risk Phrase(s):

29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings

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

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

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. 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

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

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

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

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments

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. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight

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.

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018

HazWasteOnline Classification Engine Version: 2019.256.4006.8076 (13 Sep 2019)

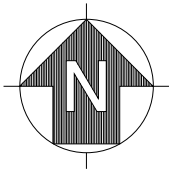
HazWasteOnline Database: 2019.256.4006.8076 (13 Sep 2019)

This classification utilises the following guidance and legislation:

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

Appendix 7

Dig Plans



- TP - OCM Trial Pits
- Previous Trial Pits
- Ex. BH - Existing Boreholes
- Monitoring Boreholes
- 17 05 04 (Meets Inert WAC)
- 17 05 04 (Non Haz Contains Asbestos (< 0.001%))
- 17 05 04 (Meets Increased IMS Lanfil Limits)
- 17 05 04 Non-Hazardous
- 17 05 04 (Exceeds Inert WAC contains Asbestos (0.001%))
- 17 05 03 Hazardous



O' Callaghan Moran & Associates.
Unit 15 Melbourne Business Park
Model Farm Road, Cork, Ireland.
Tel. (021) 4345366
email: info@ocallaghanmoran.com

CLIENT

Hines

FIGURE No.

4.1

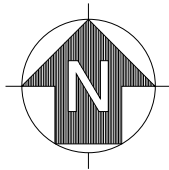
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OCM Interim Excavation Plan (Player Wills) (0.0-1.0m) Rev A

SCALE

SCALE

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CLIENT

Hines

FIGURE No.

4.1

TITLE

OCM Interim Excavation Plan (Player Wills) (0.0-1.0m) Rev A

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APPENDIX 9.1

GROUNDWATER PUMPING TEST

REPORT PLAYER WILLS

VOLUME III
APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

Groundwater Pumping Test Summary and Results

Player Wills Site

South Circular Road

Dublin 8

It is proposed to develop a double basement on the Player Wills site. The basement layout is shown on Drawing PL 098 and 099. The basement will extend from ground level (c20m Ordnance Datum (OD)) a depth typically of 7.5m below ground level (bgl) (12.5mOD) with some areas of slightly deeper excavation to c8.5m bgl (c11.5mOD) for lift pits and services. During site investigations completed on the site in 2019 the groundwater table was identified at between 2-3 metres below ground level.

Ground Investigations Ireland (GII) completed testing in October 2020 to determine how much groundwater pumping would be required to drawdown the water table during the construction of the basement and to determine the extent of the drawdown area.

Pumping was undertaken in PW-1 the pump test well and drawdown was monitored in eight surrounding monitoring wells. The locations are shown in Appendix 1. The pump was installed in PW-1 and the test commenced on the 16th October 2020. The test was then run for 24 hrs of pumping from 8.00am on the 16th October 2020 to 13.50pm on the 17th October 2020. The pump test was completed by ADF Groundwater with the water levels monitored in the pump well and data loggers were installed in eight monitoring wells, MW1, MW2, MW3, CH01, CH03, BH11, BH14 and BH16 at intervals of five minutes during the test to provide groundwater response information. The pump test data is in Appendix 2.

The pump used during the test was a high volume low pressure submersible pump and was placed with a non-return valve at bottom of the pump well which due to the limited depth of the pump well enabled the water level to be drawn down to a depth of 9.70m below the ground level. The well was pumped at a rate of 324L/hr from 14.30pm on Friday the 16th October 2020. The water level was drawn down to c9.7m bgl which is below basement formation level. This rate was maintained with the water level in the pump well remaining constant.

A small drawdown of 0.32m was noted in the adjacent MW3 with only a 0.01m drop noted in MW2. The monitoring well in BH11 did not record any change during the test.

The monitoring results indicate that dewatering rates are likely to be low <0.5m³/hour and that the drawdown area when the excavation area is being dewatered should be limited to a relatively small area which will not extend significantly beyond the site boundary.

Groundwater recovery was recorded after the pumping test which indicates that recovery of the water table after dewatering ceases will be rapid i.e.6-8 hours.

GII also completed rising head permeability testing in four of the test wells (CH-01, BH-16, MW-02 and MW-3).The testing data is also in Appendix 2. The test results are summarised on Table 1.

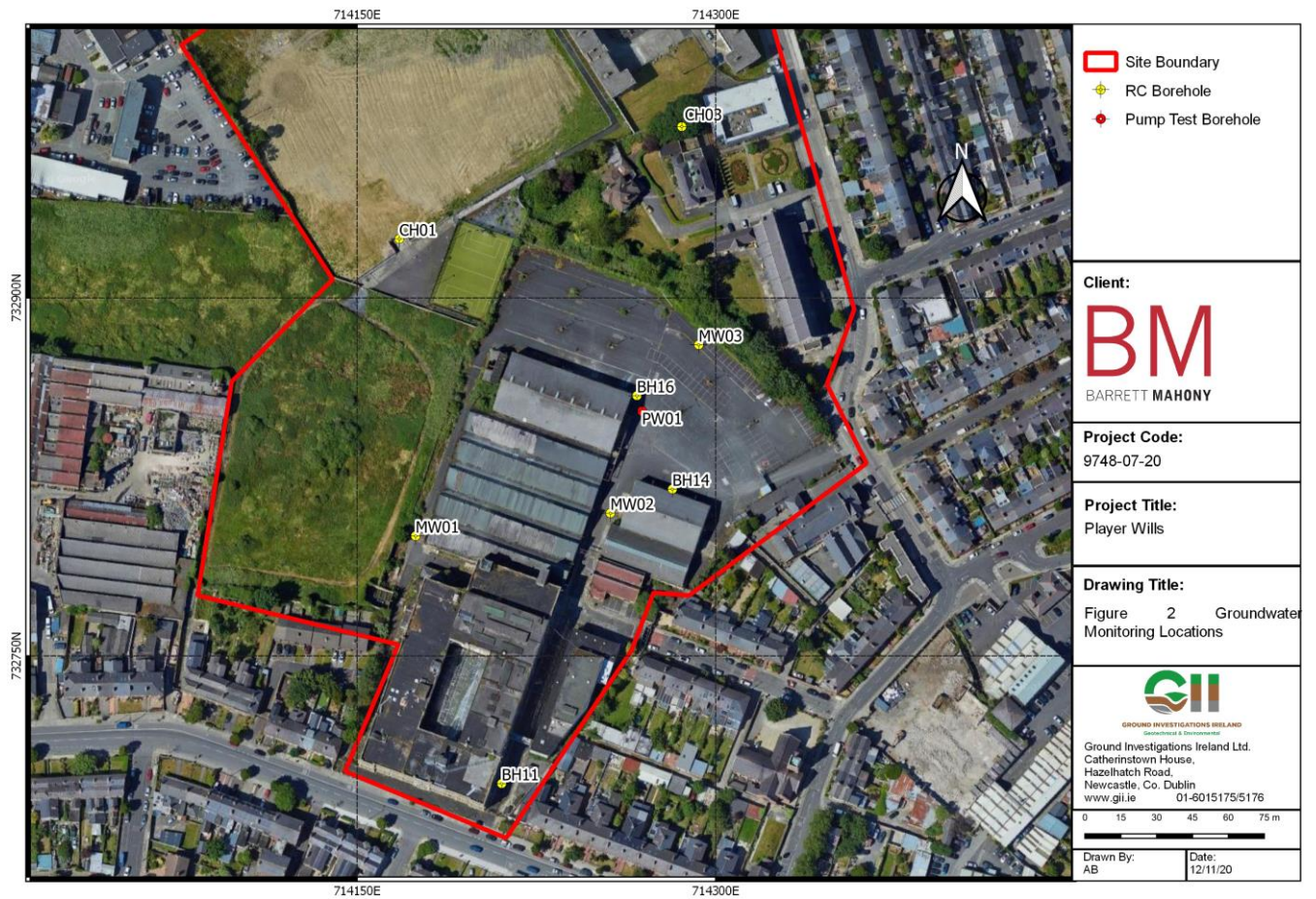
Table 1 Rising Head Permeability Results

Well ID	Permeability in Metres Per Second (m/s)
BH-16	5.90x10 ⁻⁵
CH-01	9.44x10 ⁻⁸
MW-02	4.16x10 ⁻⁷
MW-03	1.11x10 ⁻⁷

The results indicate that the bedrock permeability is low and supports the findings of the pumping test that dewatering rates will be relatively low to reduce the water table level and also that the extent of drawdown laterally should be limited to the vicinity of the site boundary.

APPENDIX 1

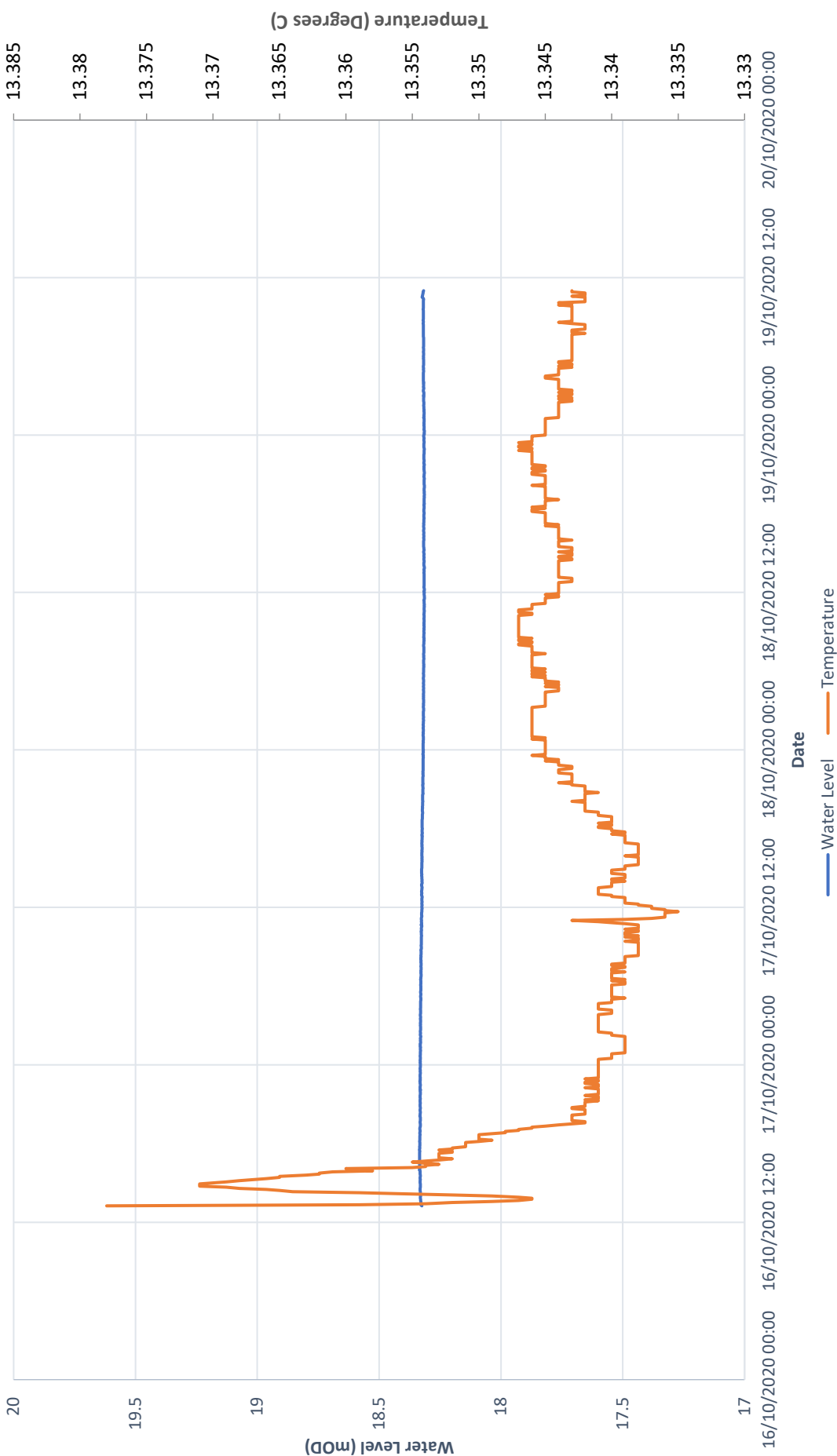
Well Locations



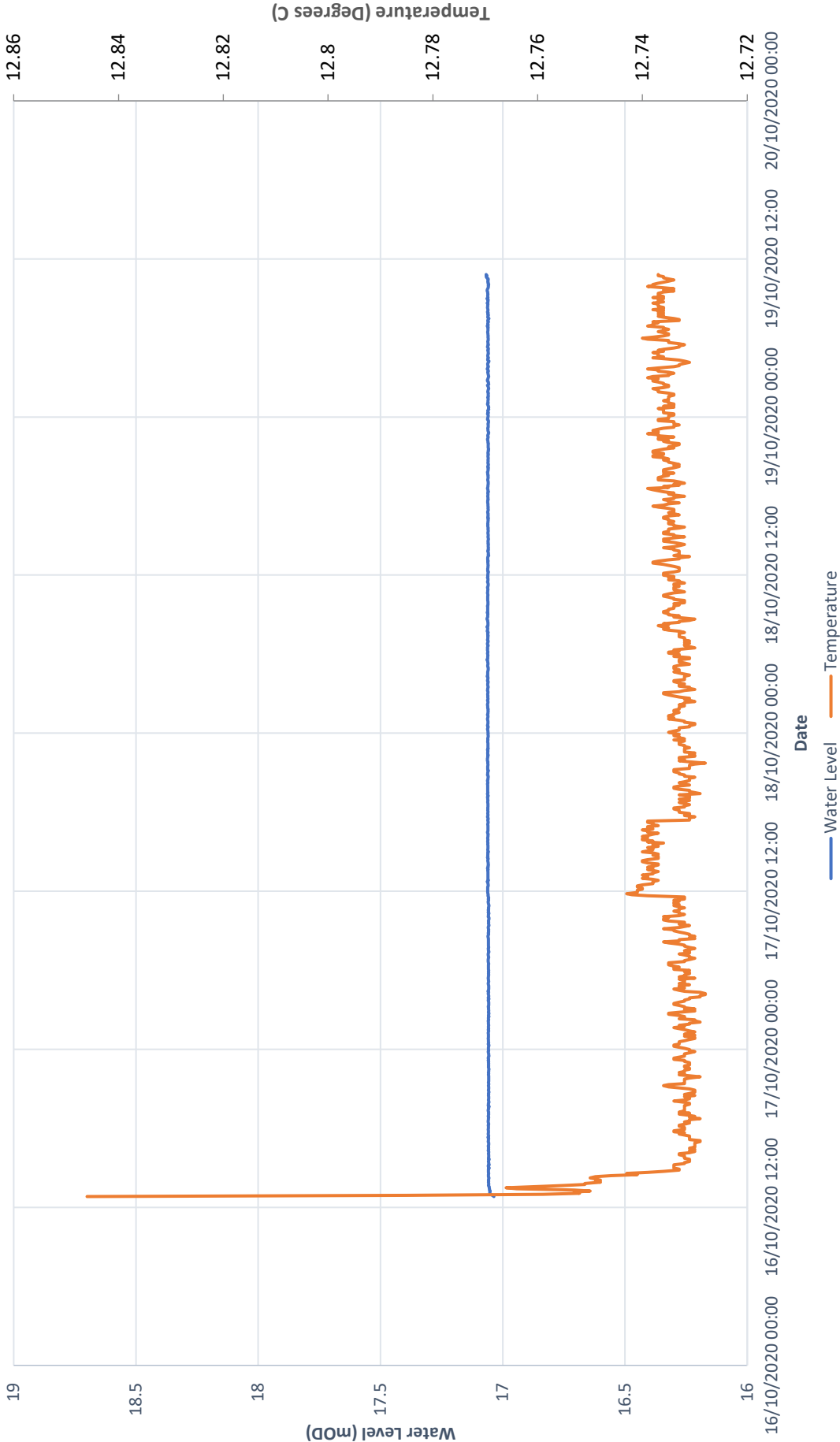
APPENDIX 2

Pumping Test and Permeability Testing Results.

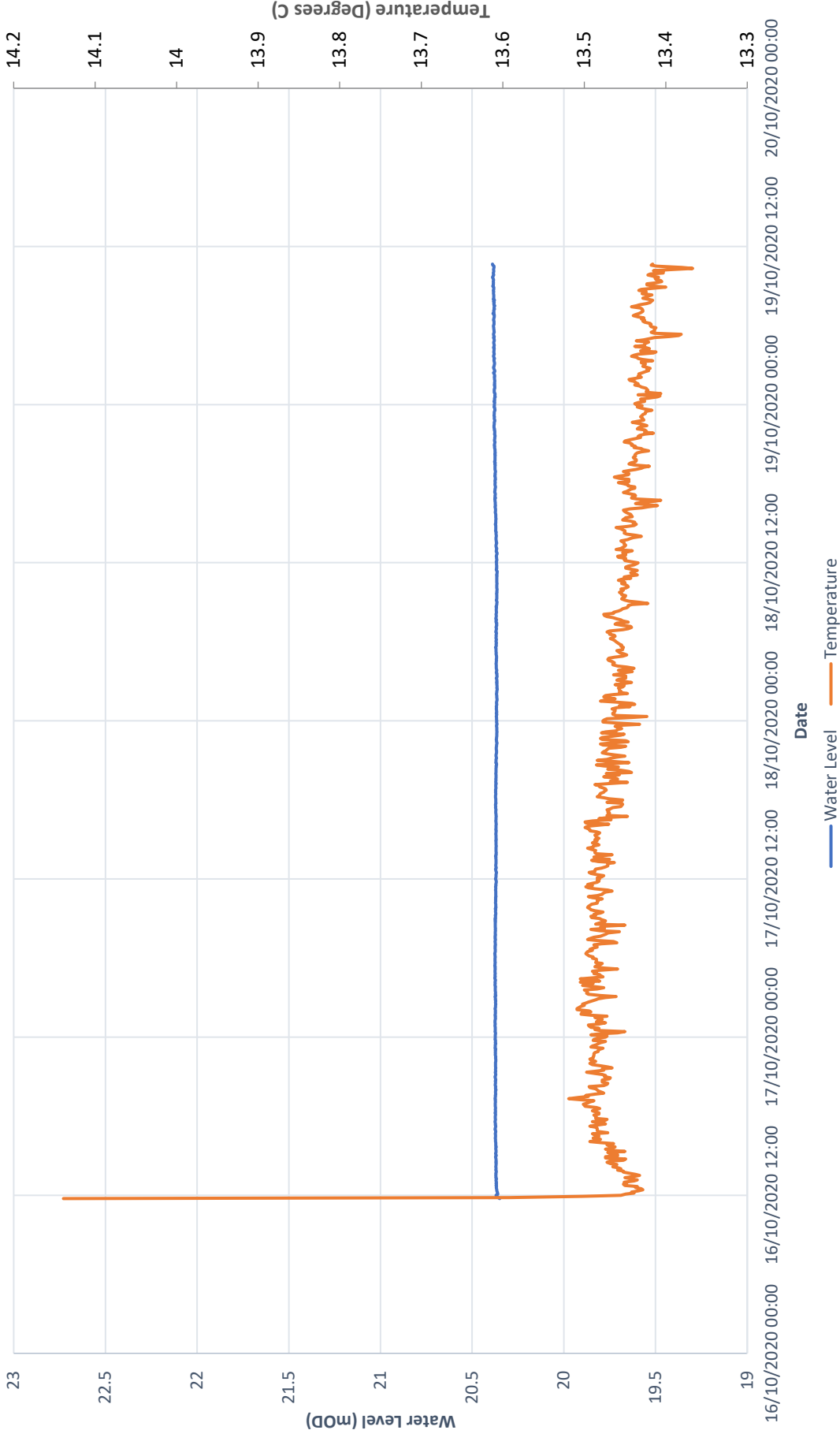
Water Level **CH01**



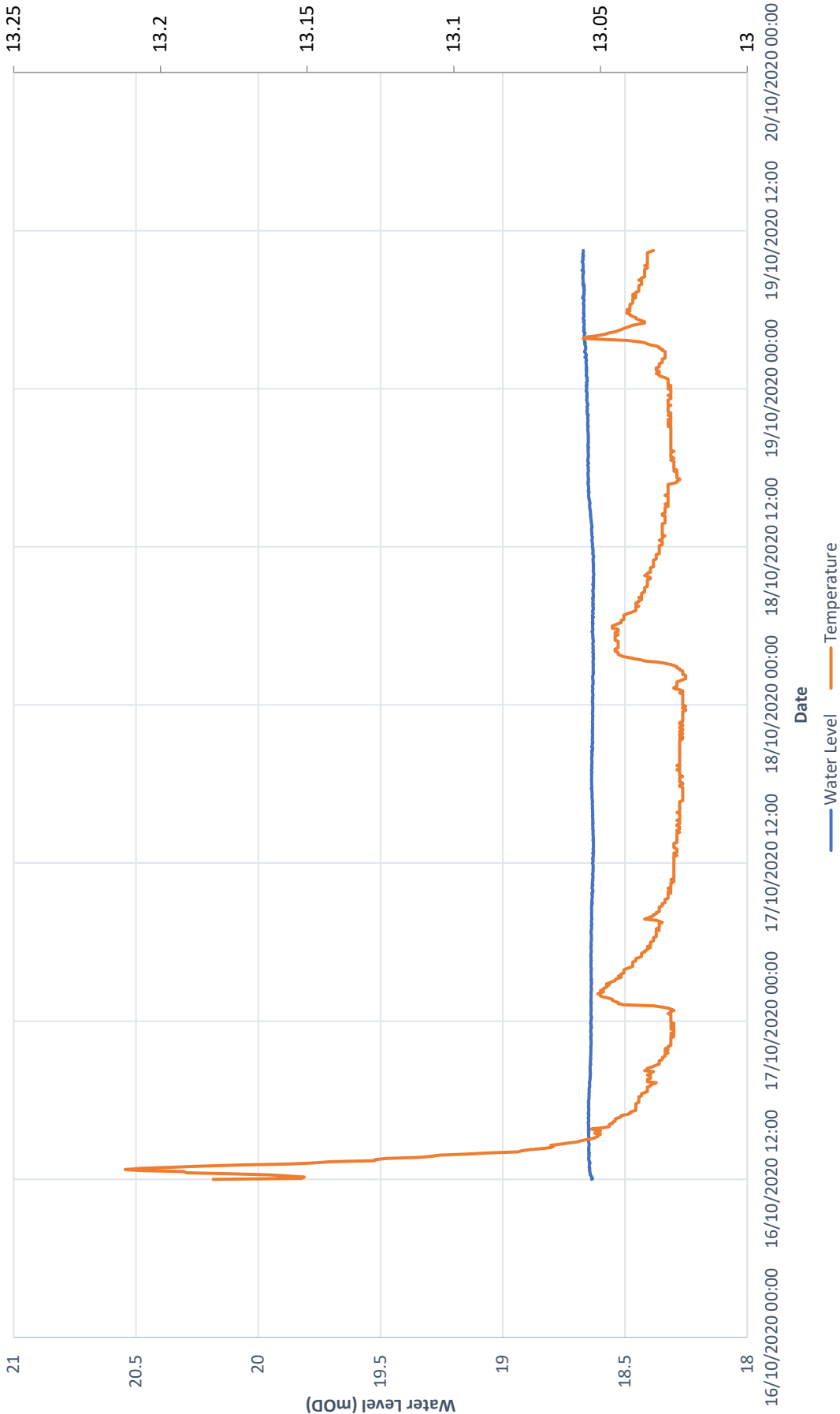
Water Level **CH03**



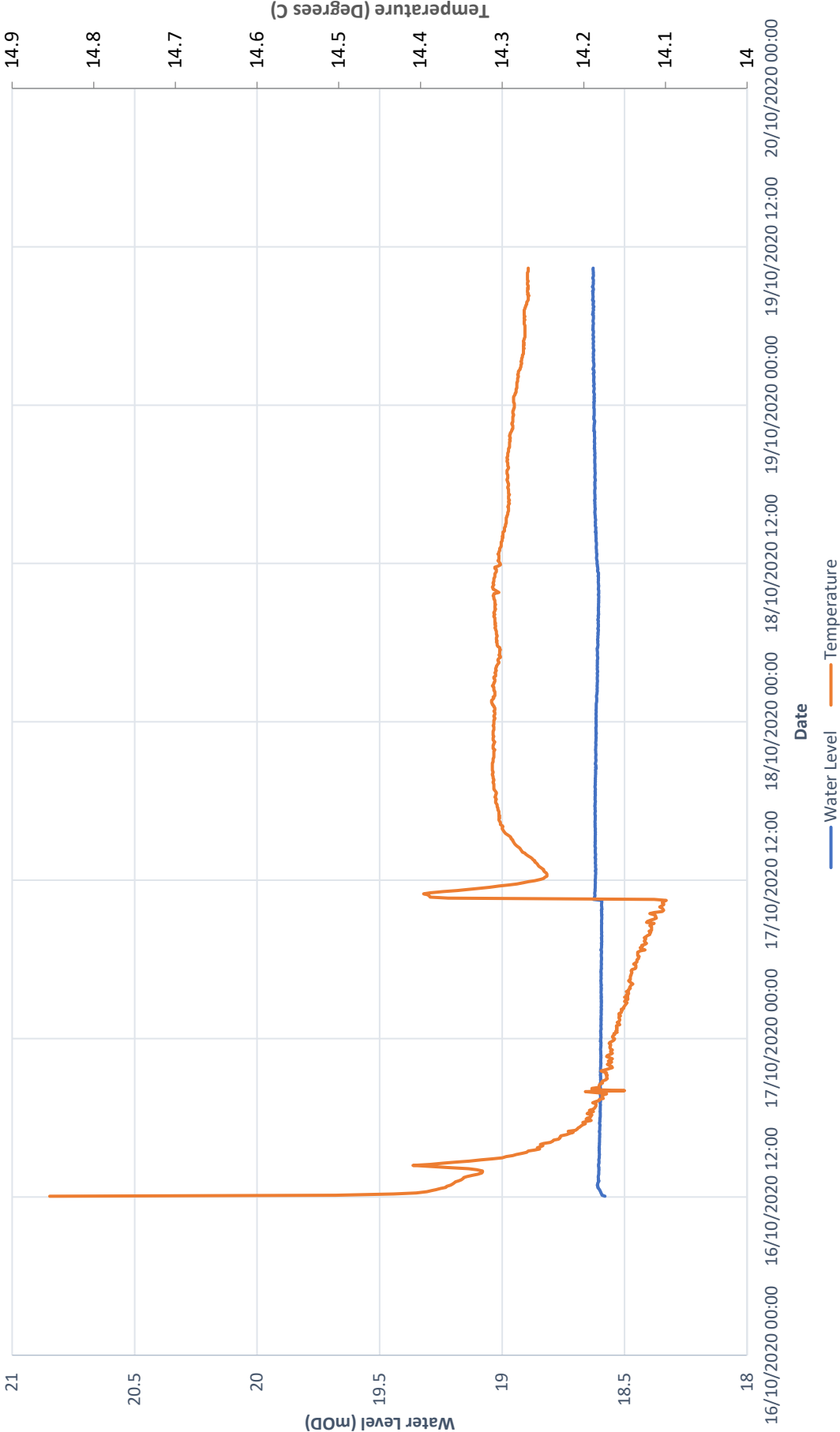
Water Level **BH11**



Water Level **BH14**



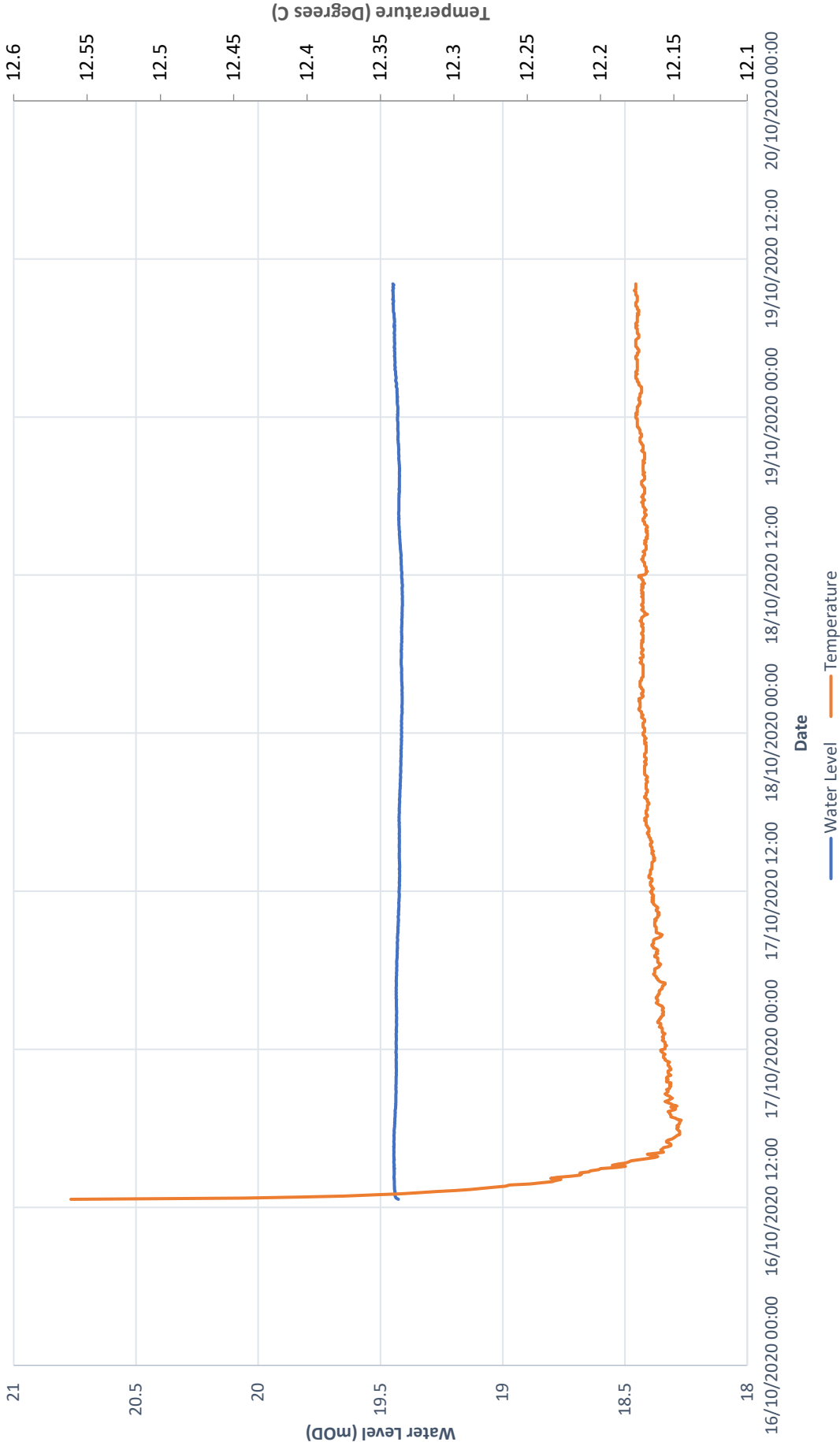
Water Level **BH16**



Water Level **MW1**



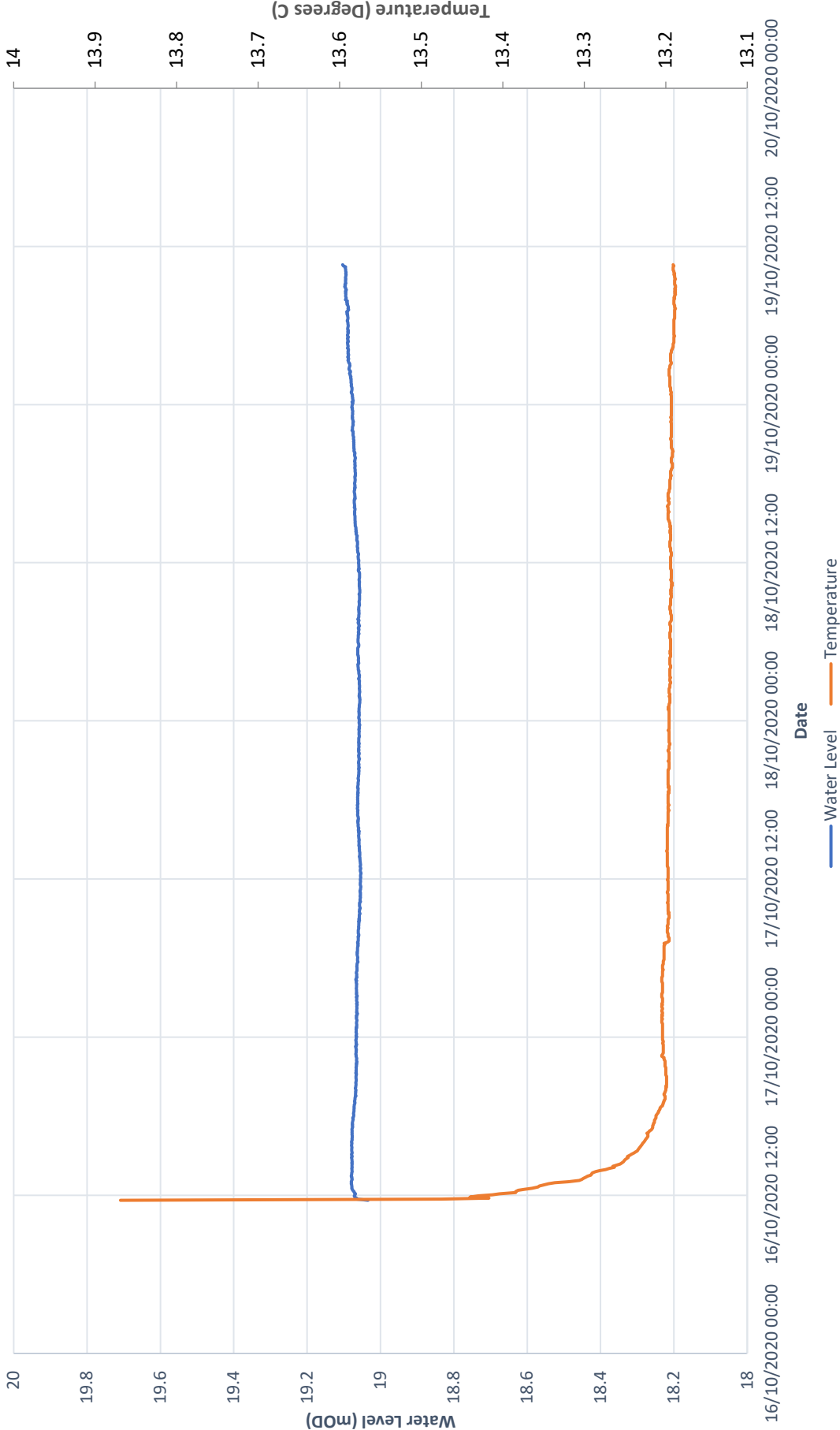
GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental



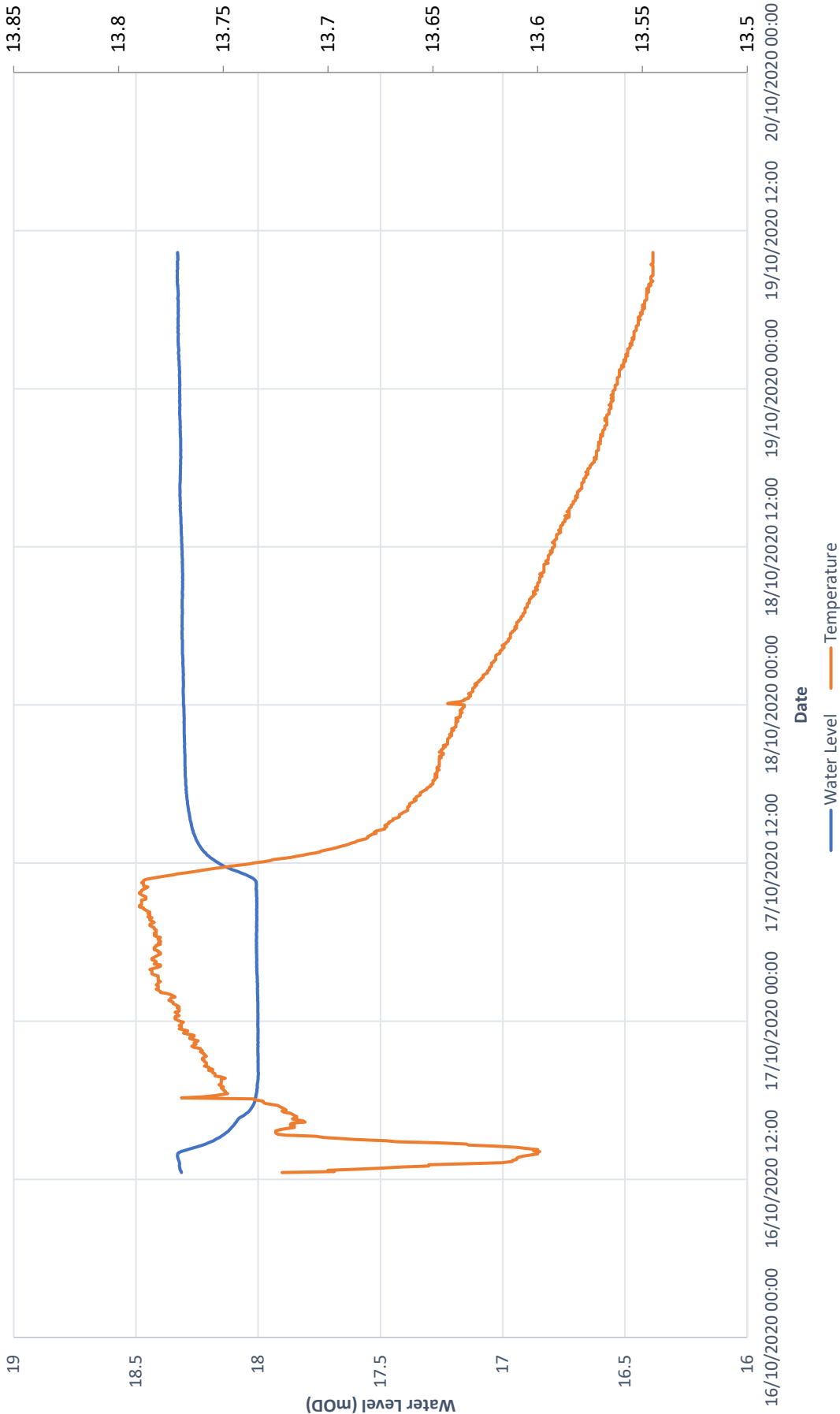
Water Level **MW2**



GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental



Water Level **MW3**



RISING HEAD TEST

Test in standpipe to BS5930 2010

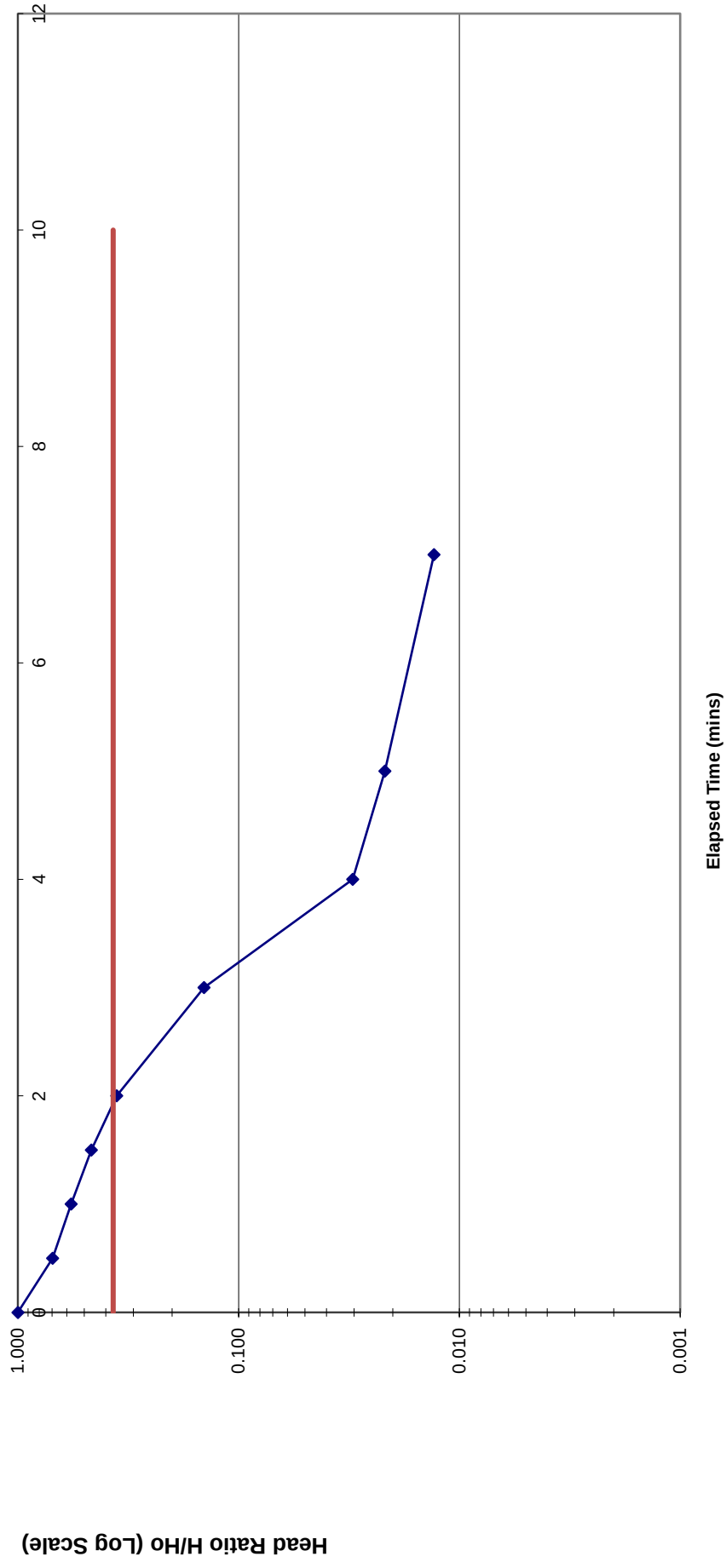


Borehole No.	BH16	Job Name	Player Wills
Test Zone		Standpipe Details:	
Depth from (m bgl)	1	Height above Ground Level	0
Depth to (m bgl)	5.8	Depth to	1
Length of Test Zone (m)	4.8	Depth (mbgl)	4.8
Hole Diameter (m)	0.2	Diameter (m)	0.05
Standpipe Diameter	0.05		
CSA of Filter Zone (m2)	0.031	Water Level Prior to Start of Test (Ws)	
		WS mBGL	1.4
Test No.	Test 1		

Time (mins)	Water Level (W) (m below top)	Head H (W-Ws)	H/H0	Ho
0	3.70	2.30	1.000	2.30
0.5	3.00	1.60	0.696	
1	2.72	1.32	0.574	
1.5	2.47	1.07	0.465	
2	2.22	0.82	0.357	
3	1.73	0.33	0.143	
4	1.47	0.07	0.030	
5	1.45	0.05	0.022	
7	1.43	0.03	0.013	
10	1.40	0.00	0.000	

Intake Factor (F)		Basic Time Factor	
L	4.8	H/Ho	0.37
L/D	24.0	T (mins)	2 at H/Ho = 0.37
F	44.36	T(Seconds)	120
Intake Factor (F): Figure 7 BS5930			
$F = (2.32 \cdot \pi \cdot L/D) / \ln(L/D + \sqrt{1.1(L/D) + \sqrt{1.1(L/D) \cdot (L/D)}})$			
Permeability			
Note: Diameter of filter zone used in calculation of area in permeability calculation below;			
$k = A / (F \times T)$		3.54E-04 m/min	
		5.90E-06 m/sec	

Player Wills BH16 Rising Head Test 1



RISING HEAD TEST

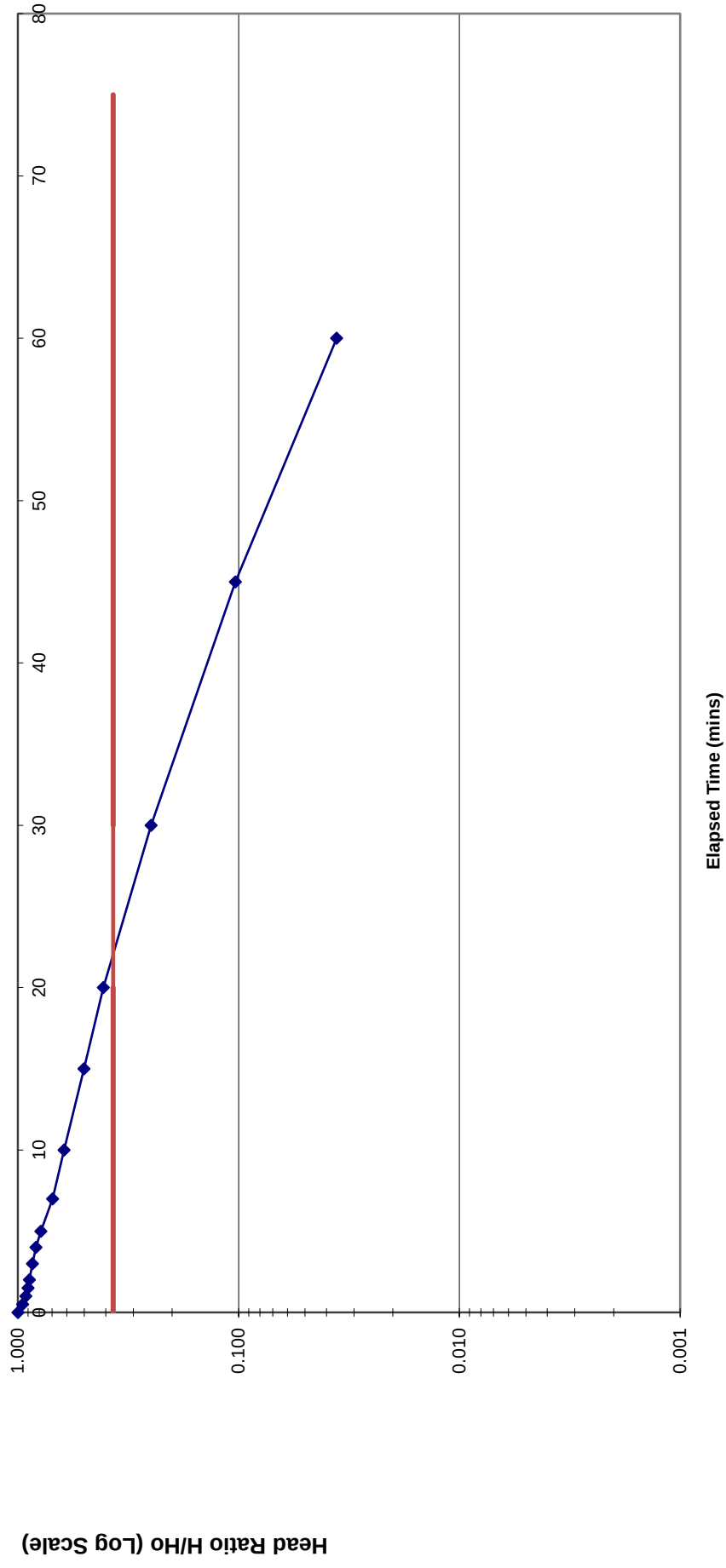
Test in standpipe to BS5930 2010

Borehole No.	CH01	Job Name	Player Wills
Test Zone		Standpipe Details:	
Depth from (m bgl)	6.2	Height above Ground Level	0
Depth to (m bgl)	9.9	Depth to	6.2
Length of Test Zone (m)	3.7	Depth (mbgl)	9.9
Hole Diameter (m)	0.1	Diameter (m)	0.05
Standpipe Diameter	0.05		
CSA of Filter Zone (m2)	0.008	Water Level Prior to Start of Test (Ws)	
		WS mBGL	0.7
Test No.	Test 1		

Time (mins)	Water Level (W) (m below top)	Head H (W-Ws)	H/H0	Ho
0	9.6	8.9	1.000	8.90
0.5	9.16	8.46	0.951	
1	8.89	8.19	0.920	
1.5	8.69	7.99	0.898	
2	8.58	7.88	0.885	
3	8.34	7.64	0.858	
4	8.07	7.37	0.828	
5	7.7	7	0.787	
7	6.89	6.19	0.696	
10	6.2	5.5	0.618	
15	5.17	4.47	0.502	
20	4.35	3.65	0.410	
30	2.92	2.22	0.249	
45	1.62	0.92	0.103	
60	1.0	0.32	0.036	
75	0.7	0	0.000	

Intake Factor (F)		Basic Time Factor	
L	3.7	H/Ho	0.37
L/D	37.0	T (mins)	22.5 at H/Ho = 0.37
F	61.63	T(Seconds)	1350
Intake Factor (F): Figure 7 BS5930			
$F = (2.32 \cdot \pi \cdot L/D) / \ln(L/D + \sqrt{1.1(L/D) + \sqrt{1.1(L/D) \cdot (L/D)}})$			
Permeability			
Note: Diameter of filter zone used in calculation of area in permeability calculation below;			
k = A / (F x T)		5.66E-06 m/min	
		9.44E-08 m/sec	

Player Wills CH01 Rising Head Test 1



RISING HEAD TEST

Test in standpipe to BS5930 2010



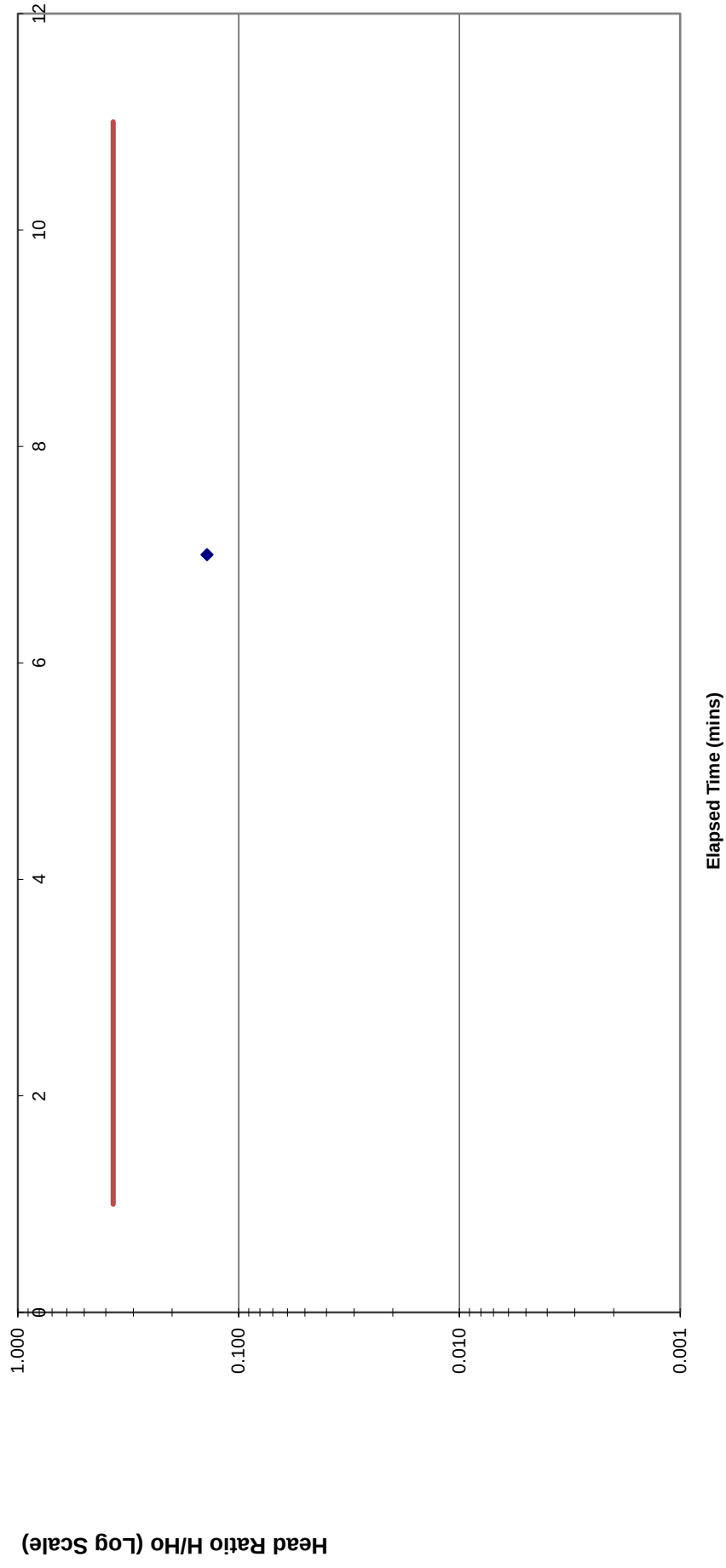
Borehole No.	CH03	Job Name	Player Wills
Test Zone		Standpipe Details:	
Depth from (m bgl)	5.6	Height above Ground Level	0
Depth to (m bgl)	10.2	Depth to	5.6
Length of Test Zone (m)	4.6	Depth (mbgl)	10.2
Hole Diameter (m)	0.1	Diameter (m)	0.05
Standpipe Diameter	0.05		
CSA of Filter Zone (m2)	0.008	Water Level Prior to Start of Test (Ws)	
		WS mBGL	1.8
Test No.	Test 1		

Time (mins)	Water Level (W) (m below top)	Head H (W-Ws)	H/H0	Ho
0	2.05			1.80
5	2.05			
10	2.05			
15	2.05			
30	2.05			
45	2.05			
60	2.05	0.25	0.139	
60.1	1.8	0	0.000	

Pumping standpipe with electrically operated submersible pump for 60 mins at an approx of 8 l/min without achieving more than 200mm drop in water level

Intake Factor (F)		Basic Time Factor	
L	4.6	H/Ho	0.37
L/D	46.0	T (mins)	n/a
F	72.99	T(Seconds)	n/a
Intake Factor (F): Figure 7 BS5930			
$F = (2.32 \cdot \pi \cdot L/D) / \ln(L/D + \sqrt{1.1(L/D) + \sqrt{1.1(L/D) \cdot (L/D)}})$			
Permeability			
Note: Diameter of filter zone used in calculation of area in permeability calculation below;			
$k = A / (F \times T)$		Response zone too large/flow too much for submersible pump	

Player Willis CH03 Rising Head Test 1



RISING HEAD TEST

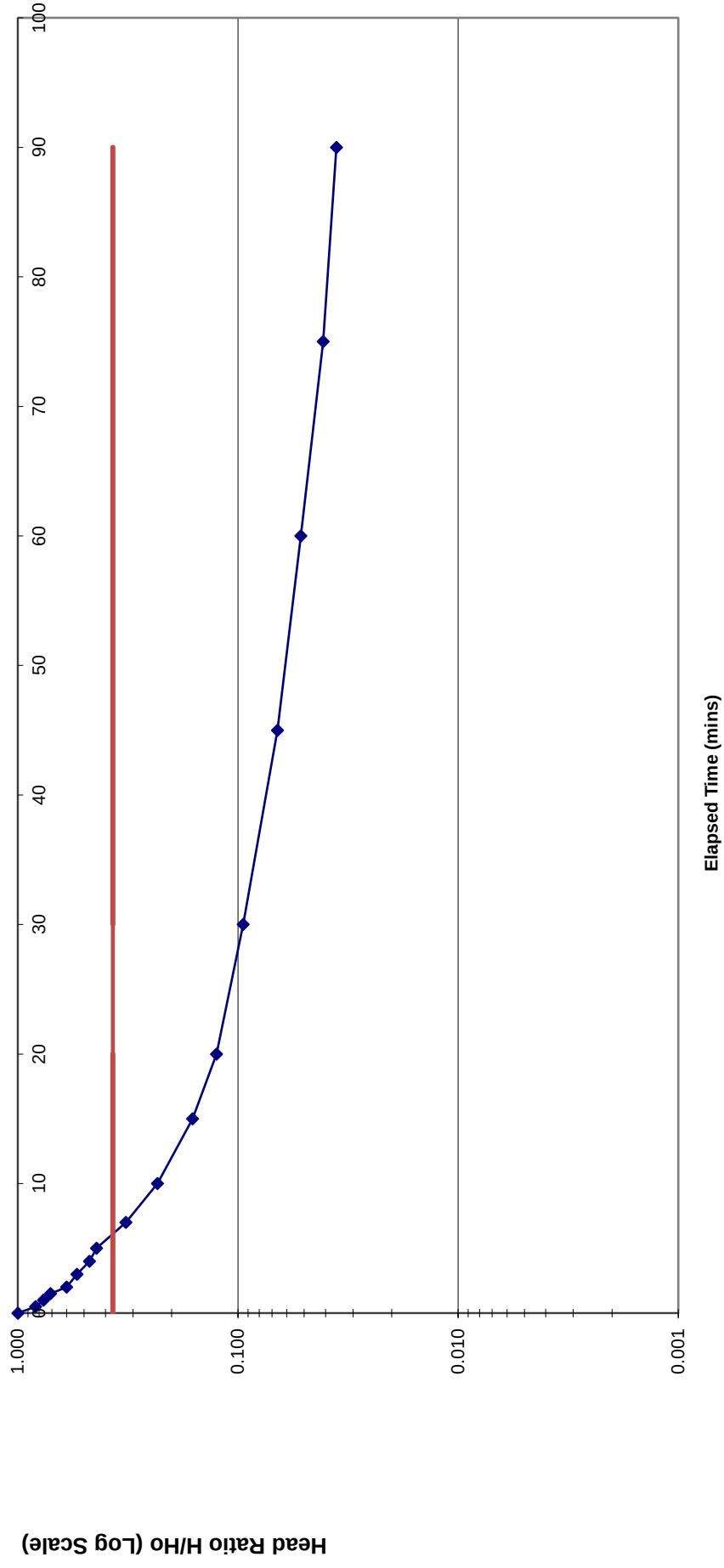
Test in standpipe to BS5930 2010

Borehole No.	MW02	Job Name	Player Wills
Test Zone		Standpipe Details:	
Depth from (m bgl)	6.7	Height above Ground Level	0
Depth to (m bgl)	9.7	Depth to	6.7
Length of Test Zone (m)	3	Depth (mbgl)	9.7
Hole Diameter (m)	0.1	Diameter (m)	0.05
Standpipe Diameter	0.05		
CSA of Filter Zone (m2)	0.008	Water Level Prior to Start of Test (Ws)	
		WS mBGL	1
Test No.	Test 1		

Time (mins)	Water Level (W) (m below top)	Head H (W-Ws)	H/H0	Ho
0	6.6	5.6	1.000	5.60
0.5	5.65	4.65	0.830	
1	5.28	4.28	0.764	
1.5	4.97	3.97	0.709	
2	4.36	3.36	0.600	
3	4.02	3.02	0.539	
4	3.65	2.65	0.473	
5	3.46	2.46	0.439	
7	2.81	1.81	0.323	
10	2.3	1.3	0.232	
15	1.9	0.9	0.161	
20	1.7	0.7	0.125	
30	1.53	0.53	0.095	
45	1.37	0.37	0.066	
60	1.3	0.29	0.052	
75	1.23	0.23	0.041	
90	1.2	0.2	0.036	

Intake Factor (F)		Basic Time Factor	
L	3	H/Ho	0.37
L/D	30.0	T (mins)	6 at H/Ho = 0.37
F	52.48	T(Seconds)	360
Intake Factor (F): Figure 7 BS5930			
$F = (2.32 \cdot \pi \cdot L/D) / \ln(L/D + \sqrt{1.1(L/D) + \sqrt{1.1(L/D) \cdot (L/D)}})$			
Permeability			
Note: Diameter of filter zone used in calculation of area in permeability calculation below;			
$k = A / (F \times T)$		2.49E-05 m/min	
		4.16E-07 m/sec	

Player Willis MW02 Rising Head Test 1



RISING HEAD TEST

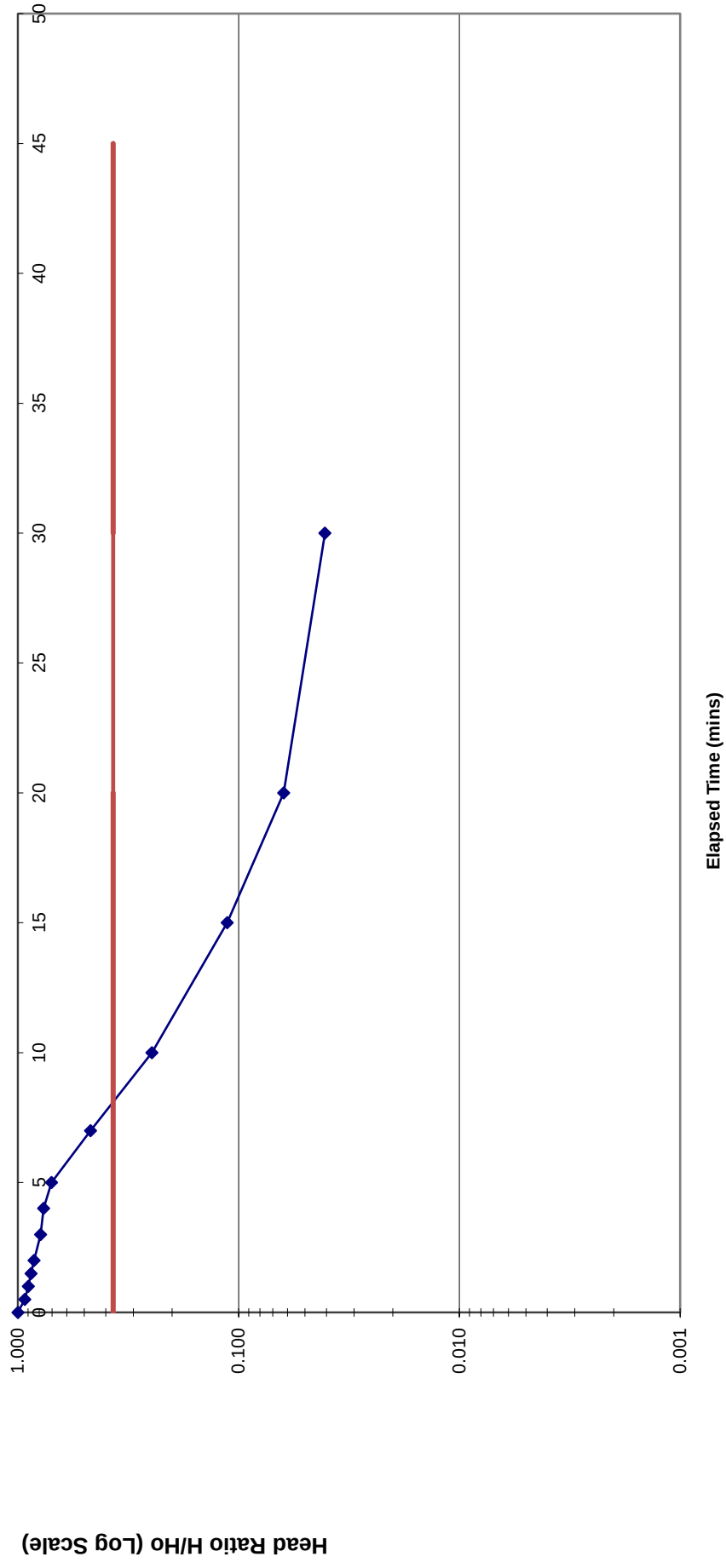
Test in standpipe to BS5930 2010

Borehole No.	MW03	Job Name	Player Wills
Test Zone		Standpipe Details:	
Depth from (m bgl)	6.5	Height above Ground Level	0
Depth to (m bgl)	9.5	Depth to	6.5
Length of Test Zone (m)	3	Depth (mbgl)	9.5
Hole Diameter (m)	0.1	Diameter (m)	0.05
Standpipe Diameter	0.05		
CSA of Filter Zone (m2)	0.008	Water Level Prior to Start of Test (Ws)	
		WS mBGL	1.4
Test No.	Test 1		

Time (mins)	Water Level (W) (m below top)	Head H (W-Ws)	H/H0	Ho
0	7.8	6.4	1.000	6.40
0.5	7.35	5.95	0.930	
1	7.14	5.74	0.897	
1.5	6.97	5.57	0.870	
2	6.8	5.4	0.844	
3	6.45	5.05	0.789	
4	6.29	4.89	0.764	
5	5.91	4.51	0.705	
7	4.4	3	0.469	
10	3.0	1.58	0.247	
15	2.12	0.72	0.113	
20	1.8	0.4	0.063	
30	1.66	0.26	0.041	
45	1.4	0	0.000	

Intake Factor (F)		Basic Time Factor	
L	3	H/Ho	0.37
L/D	30.0	T (mins)	22.5 at H/Ho = 0.37
F	52.48	T(Seconds)	1350
Intake Factor (F): Figure 7 BS5930			
$F = (2.32 \cdot \pi \cdot L/D) / \ln(L/D + \sqrt{1.1(L/D) + \sqrt{1.1(L/D) \cdot (L/D)}})$			
Permeability			
Note: Diameter of filter zone used in calculation of area in permeability calculation below;			
k = A / (F x T)		6.65E-06 m/min	
		1.11E-07 m/sec	

Player Willis MW03 Rising Head Test 1



APPENDIX 10.1

BAT SURVEY

VOLUME III

APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

**A Bat Assessment of the lands and buildings at the
Player Wills Proposed development,
South Circular Road and Implications for
Resident and Local Bat Fauna
including an internal inspection of all buildings**



**Brian Keeley B. Sc. (Hons) in Zool.
September 2020**

Introduction

Most of Ireland's mammals enjoy protection under the Wildlife Act (1976) and the more recent updating of this legislation (Wildlife (Amendment) Act 2000, S.I. No. 94 of 1997, S.I. No. 378 of 2005, European Communities (Natural Habitats) (Amendment) Regulations, 2005). In conjunction with the enactment of the Habitats Directive into Irish legislation, all native mustelid species and bat species are protected with further protection given to otters and lesser horseshoe bats. Lesser horseshoe bats are not found in County Dublin.

Bats account for nine of Ireland's terrestrial mammal species, approximately one quarter of the species of the Irish land mass. All of the species found to date and indeed all bat species that may remain undetected up to the present are afforded legal protection under Irish and EU legislation and agreements (Wildlife Act (1976), Wildlife (Amendment) Act (2000), S.I. No. 94 of 1997 and S.I. No. 378 OF 2005 implementing the EU Habitats Directive, Bonn Convention (The Convention on the Conservation of Migratory Species of Wild Animal) and the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats).

A speedy and productive means of determining the bat fauna within a site is to walk the entire site concerned, paying particular attention to all hedgerow, woodland, watercourses, fence lines, paths etc. with the aid of an ultrasonic receiver ("bat detector. In the urban environment, this would predominantly concentrate on building perimeters and well-established vegetation including planted trees and shrubs or hedgerow where it still remains.

Determining the bat fauna of the surrounding area may involve a much greater level of assessment if the aim of the survey is to catalogue all bats in all townlands but this is too detailed for the aim of creating mitigation for most developments except where the species under consideration are particularly elusive or specialised and leave few signs.

The survey undertaken within the site at the former Player Wills factory over a two year period allows a targeting of mitigation measures to the appropriate or most efficient sites to prevent accidental death or injury in and to assist in providing mitigation for losses

brought about in feeding and commuting. The lands are within inner city Dublin where bat fauna is low compared to most of the island of Ireland.

Construction and development create numerous changes to a site that usually lead to considerable vegetation loss and a change from a green site to a greater level of concrete and land management. This may alter the elements of the landscape of benefit to bats including roost sites, hedgerow, mature trees and insects.

This assessment examines the bat fauna and bat activity within the grounds of the former Player Wills factory and compares the activity levels over two consecutive years. It also includes an internal examination of all of the buildings within the site for evidence of bat roosts to allow a full evaluation of the potential impacts of development upon bats.

Methodology

The site has been assessed in two calendar years to evaluate the bat fauna within and around the buildings. The site was first examined visually for evidence of bat roosts on 16th June 2019 by ecologists Brian Keeley and Matt Hague. This was entirely external given concerns over the health and safety risks created by the buildings to a surveyor. The external examination was followed by a night-time bat detector survey utilising ultrasonic receivers to convert bat signals used in navigation and social interaction to a recordable and measurable pulse. In the field, one piece of equipment (EM3 – see below) provided a screen for instant evaluation while the capacity to record signals allowed for bat identification to be confirmed using sound analysis software (Kaleidoscope). The analysis was carried out by automatic identification and then evaluation of the identifications by the bat specialist. A second monitor, an EchoMeter Touch was attached to an Apple iPhone and displayed instant bat signals with a proposed automatic identification.

The site perimeter and all internal areas between buildings were walked before and following sunset and again prior to sunrise. Sunset was at 21.55 hours and sunrise on the following morning (17th June 2019) was at 04.58 hours.

A second survey was undertaken on September 3rd 2020 by Brian Keeley including an internal examination of all buildings in addition to an external bat detector assessment. All floors of all buildings were examined for any evidence of bat presence (current or historical).

Bat detector surveying commenced prior to sunset and continued for two hours. This involved a handheld EM3, a static Songmeter Mini between the buildings below a tunnel linking two buildings and a Songmeter 2 Bat+ on the perimeter of the site, adjacent to a green area between the site and the Bailey Gibson compound.

Surveying re-commenced one hour prior to sunrise and continued until sunrise.

Survey constraints

The site has been examined over two years and access to all buildings was available in 2020. The weather conditions were suitable for bat activity in both years but with rain potentially reducing activity in 2019. Bats were noted during both surveys and this is considered representative of the bat fauna of the site.

Equipment employed:

Echometer3 Real Time Expansion monitor with SD card recording (EM3)

Echometer Touch attached to Apple iPhone (2019)

Songmeter2Bat+ monitor for overnight recordings within the site (SM2) (2019)

Songmeter Mini broad spectrum recording monitor(mini) (2020)

Kaleidoscope Pro sound analysis software

Maps of proposed development, Google Earth and Google Maps

Huawei Smartphone 6 with digital camera (2019)

Motorola G6 (2020)

An EM3 was held for the entire survey period and recorded all bat signals detectable by its transducer. A SM2 was positioned within the site from sunset to sunrise on the night of survey. An EM Touch was employed for the early period of the survey in 2019.

Survey constraints

Conditions for surveying were suited to bat activity for the entire period of survey. There was no rain on the night of survey and temperatures were adequate for bat feeding activity. There was no strong wind at the commencement of the survey night or at any stage in the survey.

Bat species noted in 2020 in the proposed site

Common pipistrelle *Pipistrellus pipistrellus*

Leisler's bat *Nyctalus leisleri*

Bat species noted in 2019 in the proposed site

Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Leisler's bat	<i>Nyctalus leisleri</i>
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>

Bat activity was low to moderate throughout the night. Most bat activity was in a green area adjoining the site that will not be altered by this proposal. The principal activity in the site was of common pipistrelle. Lighting from existing buildings surrounding the site was high. Prior to sunrise (04.01 to 04.07 hours with sunrise at 04.58 hours), a common pipistrelle was noted along the buildings, but its final destination was not determined but did not enter the buildings.

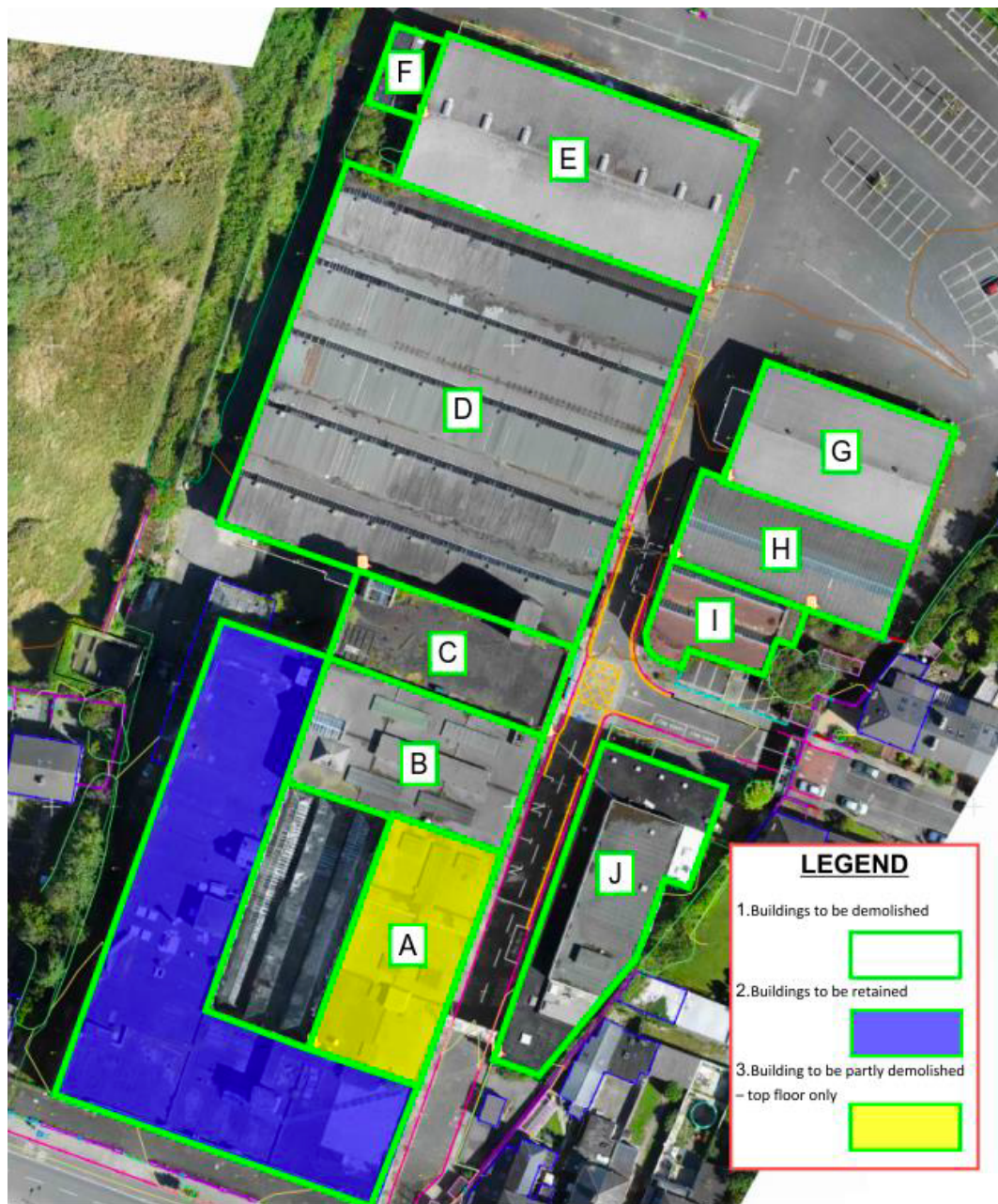
Almost all activity within Player Wills was of common pipistrelle in 2020 also and while three species were noted, the soprano pipistrelle and Leisler's bats were much less obvious within the site. As in 2019, the bat activity was noted along the avenue between the buildings and along the far section to the west of the buildings. No bats were seen to emerge from any building and no bat returned to any building.

Examination of the rooftop elements of the building and of all building internally examined yielded no evidence whatever of roosting bats. There was no staining, no bat droppings or bat carcasses. There is no evidence of bat usage of the buildings within the site. There are suitable features in particular on the roof of the building but there is no evidence of bat usage. There are numerous houses surrounding the buildings including a house gable close to the factory with potential.

Modifications or Features introduced by the proposed development

Buildings demolition and alteration

Some buildings on site (the minority) would be demolished as a consequence of this proposal while other buildings would undergo significant changes (the majority) while one building will be lowered by one floor (see below). The buildings have already been modified by the removal of large quantities of asbestos from buildings.



Buildings with the site for retention, modification and demolition

Vegetation alterations

There will be a requirement to remove all of the vegetation from the site to facilitate the project. There is an absence of either mature or immature trees with any roost potential and as bat activity was not high in the site, this may have a very limited impact upon bats.

Lighting

There will be an increased level of lighting as there will be an introduction of housing to an unused site. There will be increased lighting for the construction and operation of the new buildings. This would lead to the disturbance of light intolerant or shy species while the more urban-adapted species will be affected to a lesser extent.

Pipistrelles and Leisler's bats are less affected by light than all other species, but Pipistrelles will avoid light where possible. Leisler's bats may be attracted to lighting later into the night-time to feed on moths that themselves are attracted or disorientated by the lights. Species such as brown long-eared bat typically avoid light and *Myotis* species (such as Natterer's bat) are also typically intolerant of light. None of the latter species is known from this immediate area.

Impacts of The Proposed Development

Potential roost loss

Building demolition and tree removal create a risk of roost loss. This could lead to injury or death to a species protected under the Wildlife Act and Habitats Directive (if a roost were present and not identified) and would therefore constitute a breach of the Irish and EU legislation. There is no evidence that the buildings within the site are in use as bat roosts from the survey of June 2019 or September 2020. This survey was undertaken at an ideal time to assess maternity roosts and it is probable that should the buildings be used at any stage, it is by small numbers or individual bats. Bats move in and out of roosts on a regular basis and individuals may be present at times other than a specific survey without any clear evidence.

There is no evidence of any bat occupancy current or historical from droppings or staining or emerging or returning bats over two consecutive years of summer survey. This impact is likely to be moderate and long-term if there is roost loss and no obvious equivalent replacement for the roost loss. It is most probable from this assessment that there will be no roost loss.

Disturbance from lighting

Lighting will be utilised for two different functions:

1. Access and safety and 2) Security and policing. The former is to allow ease of use at night. The latter is to ensure a perceived higher security level. This may affect light-intolerant bat species during foraging and if directed at emergence points would affect all bat species, even those that will feed in illuminated areas.

Species such as Leisler's bat and common pipistrelles are less affected than almost all other Irish bat species and this would not be a significant impact for this species. Brown long eared and Natterer's bats are more light-intolerant, and these may be inhibited in their activity. These are not known from the site or immediate area.

At worst, it would be a permanent moderately negative impact.

Reduced Feeding

Reduced vegetation including the removal of any of the immature and undeveloped trees within the site may lead to reduced insect abundance. On the nights of survey in 2019, only two species were noted. Surveying in this area in August 2019 provided evidence of a third species; soprano pipistrelle. Feeding was higher outside of the site than within the site and the impacts upon bats feeding and commuting past the site may be greatest from the above impact (lighting).

This will be a permanent slight negative impact.

Proposed Mitigation

Incorporation of 2 bat boxes (Schwegler types 2FE or 2F or equivalent) is proposed into the site to provide bat roost opportunities. All bat boxes must be *unlit* and should be at least 2.5 metres above ground height and preferably 3 metres or higher.



2FE Wall-mounted shelter



2F with double front panel

Plate 1: Schwegler Bat Boxes proposed

The bat boxes shall be installed on buildings. Two boxes shall be attached to suitable trees / buildings away from lighting and scrub.

Planting of vegetation

Where there is an opportunity to provide vegetative cover, native and local plant species should be employed including typical plants such as oak (the greatest value for most wildlife), hawthorn, blackthorn, elder, gorse, bramble, in addition to other species such as dog rose with an encouragement of species such as *Clematis* and other species attractive to moths.

Lighting

Lighting should be controlled to avoid light pollution of green areas and should be targeted to areas of human activity and for priority security areas.

Motion-activated sensor lighting is preferable to reduce light pollution.

- All luminaires shall lack UV elements when manufactured and shall be LED
- A warm white spectrum (ideally <2700 Kelvin but as low as the Council limitations allow) shall be adopted to reduce blue light component
- Luminaires shall feature peak wavelengths higher than 550nm

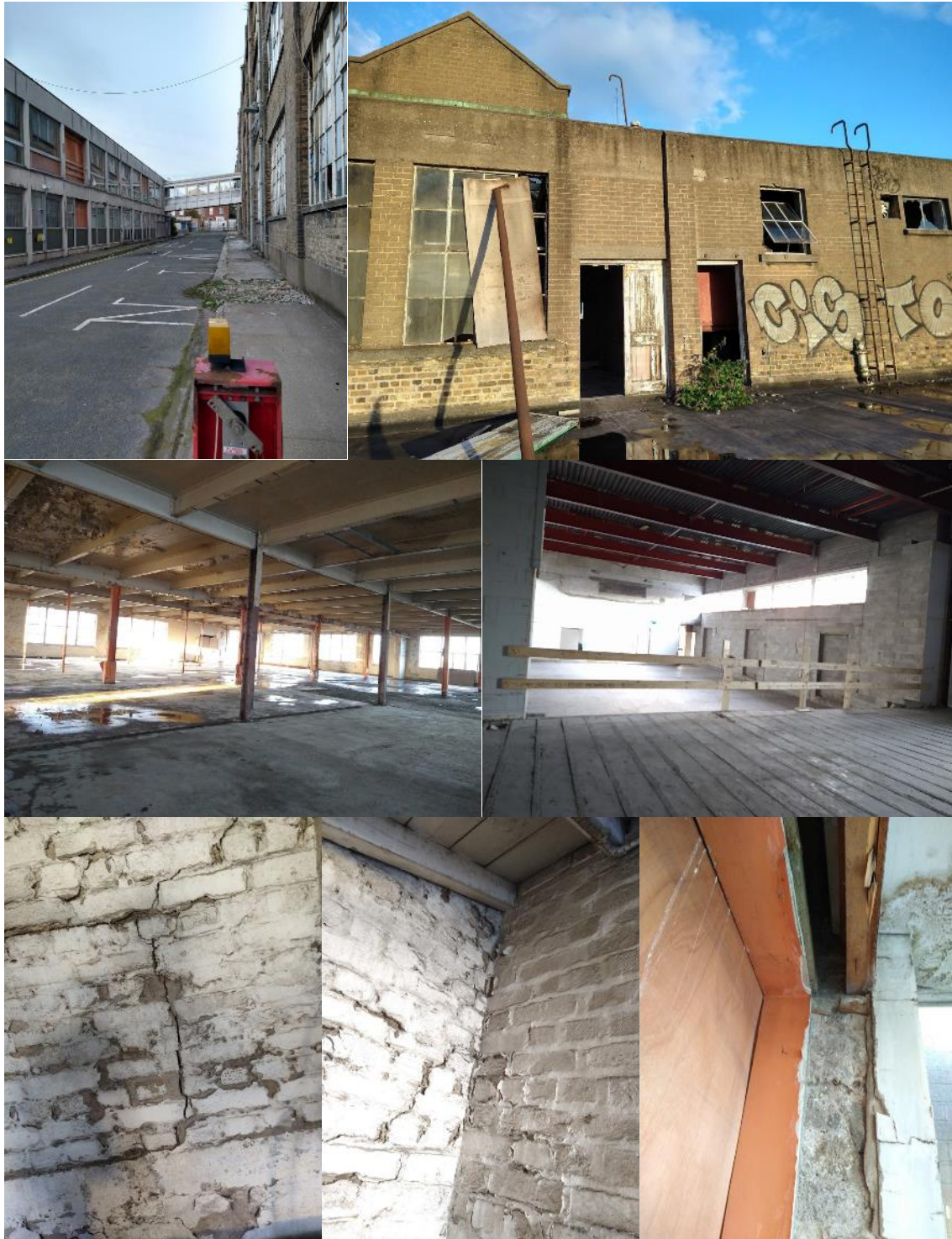
Impacts of The Proposed Development After Mitigation

There will be no impacts upon the bats of the area following the mitigation proposed.

Appendices

Photographs of the proposed development site

Bat activity data



Buildings examined – Suitable cavities were noted at roof level in the main factory building



Buildings examined

The green area at the bottom was the site of highest bat activity. The gable shown to the right is a suitable site for bats and many other opportunities exist in surrounding buildings.



Warehouse buildings that will be removed

Bat activity at Player Wills in September 2020



Legend

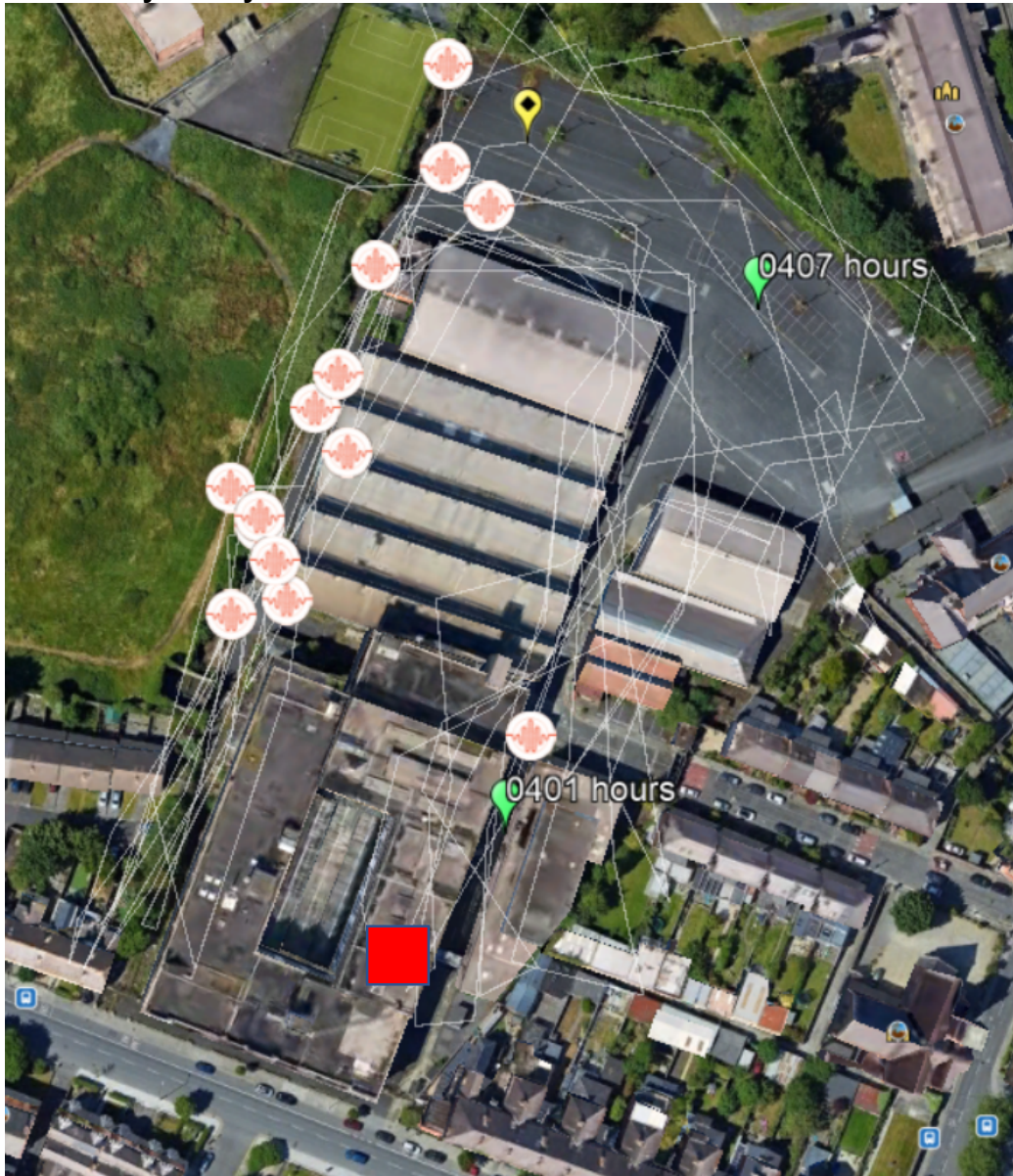
Green paddles *Common pipistrelle activity*

Blue paddle *Soprano pipistrelle activity*

White Box *Location of SM Mini static monitor (common and soprano pipistrelle and Leisler's bat noted)*

White triangle *Location of SM2 static monitor (common and soprano pipistrelle noted)*

Bat activity at Player Wills in June 2019



Legend

- White circles* *Common pipistrelle activity after sunset*
- Green paddles* *Common pipistrelle prior to sunrise*
- Yellow paddle* *Leisler's bat*
- Red Box* *Location of static monitor*
- White lines* *Transects walked by surveyor*

Data From EM3 3rd September 2020

Date	Time	Auto Id	Pulses	Manual Id
03/09/2020	20:35:30	Common Pipistrelle	37	Common Pipistrelle
03/09/2020	20:35:35	Common Pipistrelle	36	Common Pipistrelle
03/09/2020	20:35:40	Common Pipistrelle	26	Common Pipistrelle
03/09/2020	20:38:16	Common Pipistrelle	9	Common Pipistrelle
03/09/2020	20:38:21	Common Pipistrelle	50	Common Pipistrelle
03/09/2020	20:52:08	Soprano Pipistrelle	2	Soprano Pipistrelle
03/09/2020	21:08:25	Common Pipistrelle	7	Common Pipistrelle
03/09/2020	21:41:13	Common Pipistrelle	2	Common Pipistrelle
03/09/2020	21:41:18	Common Pipistrelle	31	Common Pipistrelle
03/09/2020	21:41:33	Common Pipistrelle	4	Common Pipistrelle
03/09/2020	21:41:38	Common Pipistrelle	16	Common Pipistrelle
03/09/2020	21:41:43	Common Pipistrelle	34	Common Pipistrelle
03/09/2020	21:42:13	Common Pipistrelle	18	Common Pipistrelle
03/09/2020	21:42:18	Common Pipistrelle	12	Common Pipistrelle
03/09/2020	21:42:23	Common Pipistrelle	22	Common Pipistrelle
03/09/2020	21:42:28	Common Pipistrelle	2	Common Pipistrelle

Data From Songmeter Mini 2020

Date	Time	Auto Id	Pulses	Manual Id
03/09/2020	20:28:37	Common Pipistrelle	32	Common Pipistrelle
03/09/2020	20:28:42	Common Pipistrelle	34	Common Pipistrelle
03/09/2020	20:35:21	Common Pipistrelle	33	Common Pipistrelle
03/09/2020	20:35:26	Common Pipistrelle	42	Common Pipistrelle
03/09/2020	20:37:40	Common Pipistrelle	6	Common Pipistrelle
03/09/2020	21:17:35	Leisler's Bat	2	Leisler's Bat
03/09/2020	21:17:41	Leisler's Bat	3	Leisler's Bat
03/09/2020	21:22:59	Common Pipistrelle	22	Common Pipistrelle
03/09/2020	21:23:04	Common Pipistrelle	21	Common Pipistrelle
03/09/2020	21:23:14	Common Pipistrelle	35	Common Pipistrelle
03/09/2020	21:23:19	Common Pipistrelle	9	Common Pipistrelle
03/09/2020	21:33:38	Common Pipistrelle	14	Common Pipistrelle
03/09/2020	21:33:43	Common Pipistrelle	25	Common Pipistrelle
03/09/2020	21:33:48	Common Pipistrelle	20	Common Pipistrelle
03/09/2020	21:34:02	Common Pipistrelle	16	Common Pipistrelle
03/09/2020	21:34:07	Common Pipistrelle	31	Common Pipistrelle
03/09/2020	21:34:12	Common Pipistrelle	19	Common Pipistrelle
03/09/2020	21:36:28	Noid	2	Common Pipistrelle
03/09/2020	21:40:43	Leisler's Bat	3	Common Pipistrelle
03/09/2020	21:40:48	Common Pipistrelle	11	Common Pipistrelle
03/09/2020	21:40:53	Common Pipistrelle	44	Common Pipistrelle
03/09/2020	21:40:58	Common Pipistrelle	19	Common Pipistrelle
03/09/2020	21:41:03	Common Pipistrelle	41	Common Pipistrelle
03/09/2020	21:41:08	Common Pipistrelle	38	Common Pipistrelle
03/09/2020	21:41:14	Common Pipistrelle	15	Common Pipistrelle
03/09/2020	21:41:21	Common Pipistrelle	37	Common Pipistrelle
03/09/2020	21:41:26	Common Pipistrelle	11	Common Pipistrelle
03/09/2020	21:41:31	Common Pipistrelle	3	Common Pipistrelle
03/09/2020	21:41:39	Common Pipistrelle	33	Common Pipistrelle
03/09/2020	21:41:44	Common Pipistrelle	37	Common Pipistrelle
03/09/2020	21:41:49	Common Pipistrelle	5	Common Pipistrelle
03/09/2020	22:12:51	Leisler's Bat	5	Common Pipistrelle
03/09/2020	22:12:56	Common Pipistrelle	37	Common Pipistrelle
03/09/2020	22:13:01	Leisler's Bat	9	Common Pipistrelle
03/09/2020	22:13:07	Leisler's Bat	5	Common Pipistrelle

03/09/2020	22:13:12	Common Pipistrelle	23	Common Pipistrelle
03/09/2020	22:13:17	Common Pipistrelle	30	Common Pipistrelle
03/09/2020	22:13:22	Common Pipistrelle	30	Common Pipistrelle
03/09/2020	22:13:27	Common Pipistrelle	14	Common Pipistrelle
03/09/2020	22:13:32	Common Pipistrelle	26	Common Pipistrelle
03/09/2020	22:13:38	Leisler's Bat	6	Common Pipistrelle
03/09/2020	22:14:05	Common Pipistrelle	10	Common Pipistrelle
03/09/2020	22:14:10	Common Pipistrelle	26	Common Pipistrelle
03/09/2020	22:14:15	Common Pipistrelle	25	Common Pipistrelle
03/09/2020	22:14:20	Common Pipistrelle	23	Common Pipistrelle
03/09/2020	22:14:25	Common Pipistrelle	32	Common Pipistrelle
03/09/2020	22:14:30	Noid	2	Common Pipistrelle
03/09/2020	22:15:19	Common Pipistrelle	10	Common Pipistrelle
03/09/2020	22:15:24	Common Pipistrelle	31	Common Pipistrelle
03/09/2020	22:15:29	Common Pipistrelle	5	Common Pipistrelle
03/09/2020	22:17:14	Common Pipistrelle	17	Common Pipistrelle
03/09/2020	22:19:12	Common Pipistrelle	14	Common Pipistrelle
03/09/2020	22:19:17	Common Pipistrelle	33	Common Pipistrelle
03/09/2020	22:19:22	Common Pipistrelle	8	Common Pipistrelle
03/09/2020	22:19:28	Common Pipistrelle	18	Common Pipistrelle
03/09/2020	22:19:33	Leisler's Bat	10	Common Pipistrelle
03/09/2020	22:19:38	Common Pipistrelle	33	Common Pipistrelle
03/09/2020	22:19:44	Common Pipistrelle	30	Common Pipistrelle
03/09/2020	22:19:49	Common Pipistrelle	4	Common Pipistrelle
03/09/2020	22:21:03	Common Pipistrelle	12	Common Pipistrelle
03/09/2020	22:21:08	Common Pipistrelle	33	Common Pipistrelle
03/09/2020	22:21:13	Common Pipistrelle	24	Common Pipistrelle
03/09/2020	22:21:18	Common Pipistrelle	33	Common Pipistrelle
03/09/2020	22:21:23	Common Pipistrelle	23	Common Pipistrelle
03/09/2020	22:21:28	Leisler's Bat	2	Common Pipistrelle
03/09/2020	22:23:51	Common Pipistrelle	10	Common Pipistrelle
03/09/2020	22:25:10	Common Pipistrelle	23	Common Pipistrelle
03/09/2020	22:25:15	Common Pipistrelle	30	Common Pipistrelle
03/09/2020	22:25:20	Leisler's Bat	6	Common Pipistrelle
03/09/2020	22:25:30	Common Pipistrelle	19	Common Pipistrelle
03/09/2020	22:25:35	Common Pipistrelle	40	Common Pipistrelle
03/09/2020	22:25:40	Common Pipistrelle	25	Common Pipistrelle
03/09/2020	22:25:45	Common Pipistrelle	23	Common Pipistrelle
03/09/2020	22:48:24	Leisler's Bat	21	Leisler's Bat
03/09/2020	22:48:29	Leisler's Bat	11	Leisler's Bat
03/09/2020	22:50:35	Common Pipistrelle	18	Common Pipistrelle
03/09/2020	22:51:52	Leisler's Bat	4	Common Pipistrelle
03/09/2020	22:56:07	Common Pipistrelle	16	Common Pipistrelle
03/09/2020	22:56:12	Common Pipistrelle	27	Common Pipistrelle
03/09/2020	22:56:17	Common Pipistrelle	36	Common Pipistrelle
03/09/2020	22:56:23	Common Pipistrelle	29	Common Pipistrelle
03/09/2020	22:58:01	Common Pipistrelle	33	Common Pipistrelle
03/09/2020	22:58:06	Common Pipistrelle	23	Common Pipistrelle
03/09/2020	22:58:14	Common Pipistrelle	3	Common Pipistrelle
03/09/2020	22:58:30	Leisler's Bat	8	Common Pipistrelle
03/09/2020	22:58:35	Common Pipistrelle	35	Common Pipistrelle
03/09/2020	22:58:40	Common Pipistrelle	27	Common Pipistrelle
03/09/2020	22:58:45	Common Pipistrelle	6	Common Pipistrelle
03/09/2020	23:02:10	Leisler's Bat	15	Leisler's Bat
03/09/2020	23:02:15	Leisler's Bat	15	Leisler's Bat
03/09/2020	23:10:09	Common Pipistrelle	11	Common Pipistrelle
03/09/2020	23:10:49	Common Pipistrelle	17	Common Pipistrelle
03/09/2020	23:12:54	Common Pipistrelle	6	Common Pipistrelle

03/09/2020	23:12:59	Common Pipistrelle	31	Common Pipistrelle
03/09/2020	23:13:04	Common Pipistrelle	17	Common Pipistrelle
03/09/2020	23:19:44	Common Pipistrelle	17	Common Pipistrelle
03/09/2020	23:19:49	Common Pipistrelle	21	Common Pipistrelle
03/09/2020	23:19:54	Noid	2	Common Pipistrelle
03/09/2020	23:28:53	Common Pipistrelle	9	Common Pipistrelle
03/09/2020	23:30:09	Leisler's Bat	3	Common Pipistrelle
03/09/2020	23:30:14	Common Pipistrelle	21	Common Pipistrelle
03/09/2020	23:30:19	Common Pipistrelle	43	Common Pipistrelle
03/09/2020	23:30:25	Leisler's Bat	2	Common Pipistrelle
03/09/2020	23:38:26	Soprano Pipistrelle	33	Soprano Pipistrelle
03/09/2020	23:39:15	Soprano Pipistrelle	34	Soprano Pipistrelle
03/09/2020	23:59:01	Common Pipistrelle	10	Common Pipistrelle
03/09/2020	23:59:06	Common Pipistrelle	27	Common Pipistrelle
04/09/2020	00:02:36	Leisler's Bat	8	Common Pipistrelle
04/09/2020	00:02:41	Noid	2	Common Pipistrelle
04/09/2020	00:26:10	Common Pipistrelle	10	Common Pipistrelle
04/09/2020	00:26:15	Common Pipistrelle	9	Common Pipistrelle
04/09/2020	00:28:11	Common Pipistrelle	10	Common Pipistrelle
04/09/2020	00:38:29	Common Pipistrelle	21	Common Pipistrelle
04/09/2020	00:38:46	Common Pipistrelle	39	Common Pipistrelle
04/09/2020	00:38:51	Noid	1	Common Pipistrelle
04/09/2020	00:39:10	Common Pipistrelle	12	Common Pipistrelle
04/09/2020	00:39:15	Common Pipistrelle	3	Common Pipistrelle
04/09/2020	00:48:27	Common Pipistrelle	8	Common Pipistrelle
04/09/2020	00:48:32	Leisler's Bat	20	Common Pipistrelle
04/09/2020	00:49:08	Leisler's Bat	5	Common Pipistrelle
04/09/2020	00:49:13	Leisler's Bat	3	Common Pipistrelle
04/09/2020	00:55:31	Leisler's Bat	5	Common Pipistrelle
04/09/2020	00:55:36	Common Pipistrelle	33	Common Pipistrelle
04/09/2020	00:55:41	Common Pipistrelle	10	Common Pipistrelle
04/09/2020	00:56:20	Common Pipistrelle	10	Common Pipistrelle
04/09/2020	00:56:25	Common Pipistrelle	24	Common Pipistrelle
04/09/2020	00:56:36	Leisler's Bat	3	Common Pipistrelle
04/09/2020	00:57:01	Common Pipistrelle	10	Common Pipistrelle
04/09/2020	00:57:06	Common Pipistrelle	3	Common Pipistrelle
04/09/2020	00:58:43	Common Pipistrelle	24	Common Pipistrelle
04/09/2020	06:48:09	Noid	1	Common Pipistrelle

Data From Sm2 3rd September 2020

Date	Time	Auto Id	Pulses	Manual Id
03/09/2020	20:28:30	Common Pipistrelle	10	Common Pipistrelle
03/09/2020	20:33:02	Common Pipistrelle	12	Common Pipistrelle
03/09/2020	20:33:08	Common Pipistrelle	11	Common Pipistrelle
03/09/2020	20:36:50	Noid	2	Common Pipistrelle
03/09/2020	20:42:36	Common Pipistrelle	18	Common Pipistrelle
03/09/2020	20:58:46	Common Pipistrelle	25	Common Pipistrelle
03/09/2020	20:59:51	Common Pipistrelle	25	Common Pipistrelle
03/09/2020	21:14:34	Common Pipistrelle	28	Common Pipistrelle
03/09/2020	21:19:21	Common Pipistrelle	20	Common Pipistrelle
03/09/2020	21:19:26	Common Pipistrelle	7	Common Pipistrelle
03/09/2020	21:21:26	Common Pipistrelle	8	Common Pipistrelle
03/09/2020	21:35:41	Common Pipistrelle	25	Common Pipistrelle
03/09/2020	21:42:00	Common Pipistrelle	12	Common Pipistrelle
03/09/2020	22:10:17	Common Pipistrelle	20	Common Pipistrelle
03/09/2020	22:10:22	Common Pipistrelle	11	Common Pipistrelle
03/09/2020	22:17:42	Soprano Pipistrelle	15	Pip

03/09/2020	22:51:52	Common Pipistrelle	17	Common Pipistrelle
03/09/2020	22:54:09	Common Pipistrelle	11	Common Pipistrelle
03/09/2020	23:16:34	Leisler's Bat	3	Common Pipistrelle
03/09/2020	23:17:01	Common Pipistrelle	17	Common Pipistrelle
03/09/2020	23:22:21	Common Pipistrelle	14	Common Pipistrelle
03/09/2020	23:24:04	Common Pipistrelle	14	Common Pipistrelle
03/09/2020	23:35:14	Common Pipistrelle	19	Common Pipistrelle
03/09/2020	23:35:19	Common Pipistrelle	22	Common Pipistrelle
03/09/2020	23:35:26	Soprano Pipistrelle	12	Soprano Pipistrelle
03/09/2020	23:38:24	Common Pipistrelle	11	Common Pipistrelle
03/09/2020	23:52:08	Common Pipistrelle	14	Common Pipistrelle
03/09/2020	23:55:35	Common Pipistrelle	9	Common Pipistrelle
03/09/2020	23:56:37	Common Pipistrelle	4	Common Pipistrelle
04/09/2020	00:00:04	Soprano Pipistrelle	11	Pip
04/09/2020	00:11:28	Common Pipistrelle	8	Common Pipistrelle
04/09/2020	00:13:52	Noid	2	Pip
04/09/2020	00:28:07	Common Pipistrelle	10	Common Pipistrelle
04/09/2020	00:31:42	Common Pipistrelle	4	Common Pipistrelle
04/09/2020	00:38:14	Common Pipistrelle	2	Common Pipistrelle
04/09/2020	00:38:54	Common Pipistrelle	9	Common Pipistrelle
04/09/2020	00:40:00	Common Pipistrelle	16	Common Pipistrelle

Bat activity noted by the EM3 handheld monitor at Player Wills factory June 2019

DATE	TIME	AUTO ID	MANUAL ID
16/06/2019	22:23:53	Common Pipistrelle	Common Pipistrelle
16/06/2019	22:29:55	Common Pipistrelle	Common Pipistrelle
16/06/2019	22:30:25	Nathusius' Pipistrelle	Common Pipistrelle
16/06/2019	22:30:55	Nathusius' Pipistrelle	Common Pipistrelle
16/06/2019	22:31:25	Nathusius' Pipistrelle	Common Pipistrelle
16/06/2019	22:31:56	Nathusius' Pipistrelle	Common Pipistrelle
16/06/2019	22:32:26	Common Pipistrelle	Common Pipistrelle
16/06/2019	22:32:56	Nathusius' Pipistrelle	Common Pipistrelle
16/06/2019	22:36:27	Common Pipistrelle	Common Pipistrelle
16/06/2019	22:36:57	Common Pipistrelle	Common Pipistrelle
16/06/2019	22:37:28	Common Pipistrelle	Common Pipistrelle
16/06/2019	22:37:58	Common Pipistrelle	Common Pipistrelle
16/06/2019	22:40:29	Common Pipistrelle	Common Pipistrelle
16/06/2019	22:55:04	Leisler's Bat	Leisler's Bat
16/06/2019	22:56:35	Common Pipistrelle	Common Pipistrelle
16/06/2019	22:58:06	Common Pipistrelle	Common Pipistrelle
16/06/2019	22:58:36	Common Pipistrelle	Common Pipistrelle
17/06/2019	04:01:15	Common Pipistrelle	Common Pipistrelle
17/06/2019	04:07:48	Common Pipistrelle	Common Pipistrelle

Bat signals recorded on the remote monitor

DATE	TIME	AUTO ID	MANUAL ID
16/06/2019	22:49:00	Common Pipistrelle	Common Pipistrelle Leisler's Bat
16/06/2019	22:54:00	Leisler's Bat	Leisler's Bat

APPENDIX 12.1

AMBIENT AIR QUALITY STANDARDS

VOLUME III

APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

APPENDIX 12.1

AMBIENT AIR QUALITY STANDARDS

National standards for ambient air pollutants in Ireland have generally ensued from Council Directives enacted in the EU (& previously the EC & EEC). The initial interest in ambient air pollution legislation in the EU dates from the early 1980s and was in response to the most serious pollutant problems at that time which was the issue of acid rain. As a result of this sulphur dioxide, and later nitrogen dioxide, were both the focus of EU legislation. Linked to the acid rain problem was urban smog associated with fuel burning for space heating purposes. Also apparent at this time were the problems caused by leaded petrol and EU legislation was introduced to deal with this problem in the early 1980s.

In recent years the EU has focused on defining a basis strategy across the EU in relation to ambient air quality. In 1996, a Framework Directive, Council Directive 96/62/EC, on ambient air quality assessment and management was enacted. The aims of the Directive are fourfold. Firstly, the Directive's aim is to establish objectives for ambient air quality designed to avoid harmful effects to health. Secondly, the Directive aims to assess ambient air quality on the basis of common methods and criteria throughout the EU. Additionally, it is aimed to make information on air quality available to the public via alert thresholds and fourthly, it aims to maintain air quality where it is good and improve it in other cases.

As part of these measures to improve air quality, the European Commission has adopted proposals for daughter legislation under Directive 96/62/EC. The first of these directives to be enacted, Council Directive 1999/30/EC, has been passed into Irish Law as S.I. No 271 of 2002 (Air Quality Standards Regulations 2002), and has set limit values which came into operation on 17th June 2002. The Air Quality Standards Regulations 2002 detail margins of tolerance, which are trigger levels for certain types of action in the period leading to the attainment date. The margin of tolerance varies from 60% for lead, to 30% for 24-hour limit value for PM₁₀, 40% for the hourly and annual limit value for NO₂ and 26% for hourly SO₂ limit values. The margin of tolerance commenced from June 2002, and started to reduce from 1 January 2003 and every 12 months thereafter by equal annual percentages to reach 0% by the attainment date. A second daughter directive, EU Council Directive 2000/69/EC, has published limit values for both carbon monoxide and benzene in ambient air. This has also been passed into Irish Law under the Air Quality Standards Regulations 2002.

The most recent EU Council Directive on ambient air quality was published on the 11/06/08 which has been transposed into Irish Law as S.I. 180 of 2011. Council Directive 2008/50/EC combines the previous Air Quality Framework Directive and its subsequent daughter directives. Provisions were also made for the inclusion of new ambient limit values relating to PM_{2.5}. The margins of tolerance specific to each pollutant were also slightly adjusted from previous directives. In regards to existing ambient air quality standards, it is not proposed to modify the standards but to strengthen existing provisions to ensure that non-compliances are removed. In addition, new ambient standards for PM_{2.5} are included in Directive 2008/50/EC. The approach for PM_{2.5} was to establish a target value of 25 µg/m³, as an annual average (to be attained everywhere by 2010) and a limit value of 25 µg/m³, as an annual average (to be attained everywhere by 2015), coupled with a target to reduce human exposure generally to PM_{2.5} between 2010 and 2020. This exposure reduction target will range from 0% (for PM_{2.5} concentrations of less than 8.5 µg/m³ to 20% of the average exposure indicator (AEI) for

concentrations of between 18 - 22 $\mu\text{g}/\text{m}^3$). Where the AEI is currently greater than 22 $\mu\text{g}/\text{m}^3$ all appropriate measures should be employed to reduce this level to 18 $\mu\text{g}/\text{m}^3$ by 2020. The AEI is based on measurements taken in urban background locations averaged over a three year period from 2008 - 2010 and again from 2018 - 2020. Additionally, an exposure concentration obligation of 20 $\mu\text{g}/\text{m}^3$ was set to be complied with by 2015 again based on the AEI.

Although the EU Air Quality Limit Values are the basis of legislation, other thresholds outlined by the EU Directives are used which are triggers for particular actions. The Alert Threshold is defined in Council Directive 96/62/EC as “a level beyond which there is a risk to human health from brief exposure and at which immediate steps shall be taken as laid down in Directive 96/62/EC”. These steps include undertaking to ensure that the necessary steps are taken to inform the public (e.g. by means of radio, television and the press).

The Margin of Tolerance is defined in Council Directive 96/62/EC as a concentration which is higher than the limit value when legislation comes into force. It decreases to meet the limit value by the attainment date. The Upper Assessment Threshold is defined in Council Directive 96/62/EC as a concentration above which high quality measurement is mandatory. Data from measurement may be supplemented by information from other sources, including air quality modelling.

An annual average limit for both NO_x (NO and NO_2) is applicable for the protection of vegetation in highly rural areas away from major sources of NO_x such as large conurbations, factories and high road vehicle activity such as a dual carriageway or motorway. Annex VI of EU Directive 1999/30/EC identifies that monitoring to demonstrate compliance with the NO_x limit for the protection of vegetation should be carried out distances greater than:

- 5 km from the nearest motorway or dual carriageway
- 5 km from the nearest major industrial installation
- 20 km from a major urban conurbation
- As a guideline, a monitoring station should be indicative of approximately 1000 km^2 of surrounding area.

Under the terms of EU Framework Directive on Ambient Air Quality (96/62/EC), geographical areas within member states have been classified in terms of zones. The zones have been defined in order to meet the criteria for air quality monitoring, assessment and management as described in the Framework Directive and Daughter Directives. Zone A is defined as Dublin and its environs, Zone B is defined as Cork City, Zone C is defined as 23 urban areas with a population greater than 15,000 and Zone D is defined as the remainder of the country. The Zones were defined based on among other things, population and existing ambient air quality.

EU Council Directive 96/62/EC on ambient air quality and assessment has been adopted into Irish Legislation (S.I. No. 33 of 1999). The act has designated the Environmental Protection Agency (EPA) as the competent authority responsible for the implementation of the Directive and for assessing ambient air quality in the State. Other commonly referenced ambient air quality standards include the World Health Organisation. The WHO guidelines differ from air quality standards in that they are primarily set to protect public health from the effects of air

pollution. Air quality standards, however, are air quality guidelines recommended by governments, for which additional factors, such as socio-economic factors, may be considered.

APPENDIX 12.2

DUST MANAGEMENT PLAN

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APPENDIX 12.2

DUST MANAGEMENT PLAN

The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to develop a workable and transparent dust control strategy, the following management plan has been formulated by drawing on best practice guidance from Ireland, the UK (IAQM (2014), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997).

Site Management

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design and effective control strategies.

At the construction planning stage, the siting of activities and storage piles will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance (see Figure 12.1 for the windrose for Dublin Airport). As the prevailing wind is predominantly south-westerly to south-easterly, locating construction compounds and storage piles downwind of sensitive receptors will minimise the potential for dust nuisance to occur at sensitive receptors.

Good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or quickly implementing effective control measures before the potential for nuisance occurs. When rainfall is greater than 0.2mm/day, dust generation is generally suppressed (IAQM, 2014; UK ODPM, 2002). The potential for significant dust generation is also reliant on threshold wind speeds of greater than 10 m/s (19.4 knots) (at 7m above ground) to release loose material from storage piles and other exposed materials (USEPA, 1986). Particular care should be taken during periods of high winds (gales) as these are periods where the potential for significant dust emissions are highest. The prevailing meteorological conditions in the vicinity of the site are favourable in general for the suppression of dust for a significant period of the year. Nevertheless, there will be infrequent periods where care will be needed to ensure that dust nuisance does not occur. The following measures shall be taken in order to avoid dust nuisance occurring under unfavourable meteorological conditions:

- The Principal Contractor or equivalent must monitor the contractors' performance to ensure that the proposed mitigation measures are implemented and that dust impacts and nuisance are minimised;
- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions;
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details;
- It is recommended that community engagement be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses;
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out;

- It is the responsibility of the contractor at all times to demonstrate full compliance with the dust control conditions herein;
- At all times, the procedures put in place will be strictly monitored and assessed.

The dust minimisation measures shall be reviewed at regular intervals during the works to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed and satisfactory procedures implemented to rectify the problem. Specific dust control measures to be employed are described below.

Demolition

- Prior to demolition blocks should be soft striped inside buildings (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- During the demolition process, water suppression should be used, preferably with a hand-held spray. Only the use of cutting, grinding or sawing equipment fitted or used in conjunction with a suitable dust suppression technique such as water sprays/local extraction should be used.
- Drop heights from conveyors, loading shovels, hoppers and other loading equipment should be minimised, if necessary fine water sprays should be employed.

Site Roads / Haulage Routes

Movement of construction trucks along site roads (particularly unpaved roads) can be a significant source of fugitive dust if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25 to 80% (UK ODPM, 2002).

- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles using unpaved site roads;
- Access gates to the site shall be located at least 10m from sensitive receptors where possible;
- Bowsers or suitable watering equipment will be available during periods of dry weather throughout the construction period. Research has found that watering can reduce dust emissions by 50% (USEPA, 1997). Watering shall be conducted during sustained dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use;
- Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.

Land Clearing / Earth Moving

Land clearing / earth-moving works during periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust;
- During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.

Storage Piles

The location and moisture content of storage piles are important factors which determine their potential for dust emissions.

- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the site. Where possible storage piles should be located downwind of sensitive receptors;
- Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust. The regular watering of stockpiles has been found to have an 80% control efficiency (UK ODPM, 2002).
- Where feasible, hoarding will be erected around site boundaries to reduce visual impact. This will also have an added benefit of preventing larger particles from impacting on nearby sensitive receptors.

Site Traffic on Public Roads

Spillage and blow-off of debris, aggregates and fine material onto public roads should be reduced to a minimum by employing the following measures:

- Vehicles delivering or collecting material with potential for dust emissions shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- At the main site traffic exits, a wheel wash facility shall be installed if feasible. All trucks leaving the site must pass through the wheel wash. In addition, public roads outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary.

Summary of Dust Mitigation Measures

The pro-active control of fugitive dust will ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the satisfactory performance of the contractor. The key features with respect to control of dust will be:

- The specification of a site policy on dust and the identification of the site management responsibilities for dust issues;
- The development of a documented system for managing site practices with regard to dust control;
- The development of a means by which the performance of the dust minimisation plan can be regularly monitored and assessed; and
- The specification of effective measures to deal with any complaints received.

APPENDIX 13.1

RMP SITES WITHIN THE SURROUNDING AREA

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Appendix 13.1 RMP Sites within the Surrounding Area

SMR No.	DU018-020
RMP	Yes
Location	Dolphin's Barn Street
Barony	Dublin
Classification	Historic Town
Dist. To Development	Within proposed application area
Description	Zone of archaeological potential surrounding the historic town of Dublin. The area within the proposed application area relates to the culverted course of the River Poddle
Reference	www.archaeology.ie

SMR No.	DU018-020576
RMP	Yes
Location	Dolphin's Barn Street
Barony	Dublin
I.T.M.	714413/732939
Classification	Watercourse
Dist. To Development	105m west-northwest
Description	Path of historic watercourse.
Reference	www.archaeology.ie

SMR No.	DU018-043001
RMP	Yes
Location	Reuben Street
Barony	Dublin
Classification	Watercourse
Dist. To Development	225m southeast
Description	Path of historic watercourse.
Reference	www.archaeology.ie

SMR No.	DU018-043002
RMP	Yes
Location	Rutland Ave.
Barony	Dublin
Classification	Watercourse
Dist. To Development	250m southwest
Description	Path of historic watercourse.

Reference	www.archaeology.ie
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SMR No.	DU018-047001
RMP	Yes
Location	Donore Ave.
Barony	Dublin
I.T.M.	713851/732939
Classification	Castle - unclassified
Dist. To Development	115m southeast
Description	Shown on the OS 1837 map as 'Site of Donore castle'. The site is occupied by a Business park. This castle was located within a medieval borough which is mentioned in Alen's Register for the year 1228 (Martin 1981, 40). No visible surface traces.
Reference	www.archaeology.ie

SMR NO.	DU018-043004
RMP	Yes
Location	South Circular Road
Barony	Dublin
Classification	Watercourse
Dist. To Development	100m north northwest
Description	Path of historic watercourse.
Reference	www.archaeology.ie

SMR NO.	DU018-020358
RMP	Yes
Location	Dublin South City
Barony	Dublin
I.T.M.	714466/733267
Classification	House - 18th/19th century
Dist. To Development	426m north-northeast
Description	No information available
Reference	www.archaeology.ie

SMR NO.	DU018-020503
RMP	No
Location	Dublin South City
Barony	Dublin
I.T.M.	714223/733343

Classification	Graveyard
Dist. To Development	440m north
Description	No information available
Reference	www.archaeology.ie

SMR NO.	DU018-020357
RMP	Yes
Location	Dublin South City
Barony	Dublin
I.T.M.	714676/733222
Classification	House - 18th/19th century
Dist. To Development	485m northeast
Description	No information available
Reference	www.archaeology.ie

SMR NO.	DU018-048
RMP	Yes
Location	Kimmage
Barony	Dublin
I.T.M.	714508/732299
Classification	Mill - unclassified
Dist. To Development	400m southeast
Description	No information available
Reference	www.archaeology.ie

APPENDIX 13.2

STRAY FINDS WITHIN

THE SURROUNDING AREA

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Appendix 13.2 Stray Finds within the Surrounding Area

Information on artefact finds from the study area in County Dublin has been recorded by the National Museum of Ireland since the late 18th century. Location information relating to these finds is important in establishing prehistoric and historic activity in the study area.

A review of the topographical files for the study area revealed that no stray finds have been recovered.

APPENDIX 13.3

LEGISLATION PROTECTING THE

ARCHAEOLOGICAL RESOURCE

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PROTECTION OF CULTURAL HERITAGE

The cultural heritage in Ireland is safeguarded through national and international policy designed to secure the protection of the cultural heritage resource to the fullest possible extent (Department of Arts, Heritage, Gaeltacht and the Islands 1999, 35). This is undertaken in accordance with the provisions of the European Convention on the Protection of the Archaeological Heritage (Valletta Convention), ratified by Ireland in 1997.

THE ARCHAEOLOGICAL RESOURCE

The National Monuments Act 1930 to 2014 and relevant provisions of the National Cultural Institutions Act 1997 are the primary means of ensuring the satisfactory protection of archaeological remains, which includes all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes. A National Monument is described as 'a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto' (National Monuments Act 1930 Section 2). A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Register of Historic Monuments, the Record of Monuments and Places, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

OWNERSHIP AND GUARDIANSHIP OF NATIONAL MONUMENTS

The Minister may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

REGISTER OF HISTORIC MONUMENTS

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic monuments and archaeological areas present on the register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the register is illegal without the permission of the Minister. Two months' notice in writing is required prior to any work being undertaken on or in the vicinity of a registered monument. The register also includes sites under Preservation Orders and Temporary Preservation Orders. All registered monuments are included in the Record of Monuments and Places.

PRESERVATION ORDERS AND TEMPORARY PRESERVATION ORDERS

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

RECORD OF MONUMENTS AND PLACES

Section 12(1) of the 1994 Act requires the Minister for Arts, Heritage, Gaeltacht and the Islands (now the Minister for the Department of Culture, Heritage and the Gaeltacht) to establish and maintain a record of monuments and places where the Minister believes that such monuments exist. The record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the state. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994. All recorded monuments on the proposed development site are represented on the accompanying maps.

Section 12(3) of the 1994 Act provides that 'where the owner or occupier (other than the Minister for Arts, Heritage, Gaeltacht and the Islands) of a monument or place included in the Record, or any other person, proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Arts, Heritage, Gaeltacht and the Islands to carry out work and shall not, except in case of urgent necessity and with the consent of the Minister, commence the work until two months after giving of notice'.

Under the National Monuments (Amendment) Act 2004, anyone who demolishes or in any way interferes with a recorded site is liable to a fine not exceeding €3,000 or imprisonment for up to 6 months. On summary conviction and on conviction of indictment, a fine not exceeding €10,000 or imprisonment for up to 5 years is the penalty. In addition, they are liable for costs for the repair of the damage caused.

In addition to this, under the European Communities (Environmental Impact Assessment) Regulations 1989, Environmental Impact Statements (EIS) are required for various classes and sizes of development project to assess the impact the proposed development will have on the existing environment, which includes the cultural, archaeological and built heritage resources. These document's recommendations are typically incorporated into the conditions under which the proposed development must proceed, and thus offer an additional layer of protection for monuments which have not been listed on the RMP.

THE PLANNING AND DEVELOPMENT ACT 2000

Under planning legislation, each local authority is obliged to draw up a Development Plan setting out their aims and policies with regard to the growth of the area over a five-year period. They cover a range of issues including archaeology and built heritage, setting out their policies and objectives with regard to the protection and enhancement of both. These policies can vary from county to county. The Planning and Development Act 2000 recognises that proper planning and sustainable development includes the protection of the archaeological heritage. Conditions relating to archaeology may be attached to individual planning permissions.

Dublin City Council Development Plan 2016-2022

It is the policy of Dublin City Council

CHC9: To protect and preserve National Monuments.

To protect archaeological material in situ by ensuring that only minimal impact on archaeological layers is allowed, by way of the re-use of buildings, light buildings, foundation design or the omission of basements in the Zones of Archaeological Interest.

That where preservation in situ is not feasible, sites of archaeological interest shall be subject to 'preservation by record' according to best practice in advance of re-development.

That sites within Zones of Archaeological Interest will be subject to consultation with the City Archaeologist and archaeological assessment prior to a planning application being lodged.

That the National Monuments Service will be consulted in assessing proposals for development which relate to Monuments and Zones of Archaeological Interest.

To preserve known burial grounds and disused historic graveyards, where appropriate, to ensure that human remain are re-interred, except where otherwise agreed with the National Museum of Ireland.

That in evaluating proposals for development in the vicinity of the surviving sections of the city wall that due recognition be given to their national significance and their special character.

To have regard to the Shipwreck inventory maintained by the DAHG. Proposed developments that may have potential to impact on riverine, inter-tidal and sub-tidal environments shall be subject to an underwater archaeological assessment in advance of works.

To have regard to DAHG policy documents and guidelines relating to archaeology.

It is an objective of Dublin City Council:

CHCO10:

To implement the archaeological actions of the Dublin City Heritage Plan 2002-6 in light of the Dublin City Heritage Plan Review 2012.

To prepare and implement conservation plans for National Monuments and Monuments in DCC care (City Walls, St Luke's Church, St James's Graveyard, St. Thomas's Abbey, St Canice's Graveyard etc).

To maintain, develop and promote the Dublin City Archaeological Archive (DCAA) at Pearse Street Library and Archives.

To ensure the public dissemination of the findings of licensed archaeological activity in Dublin through the Dublin County Archaeology GIS.

To develop a long-term management plan to promote the conservation, management and interpretation of archaeological sites and monuments and to identify areas for strategic research.

To have regard to the city's industrial heritage and Dublin City Industrial Heritage Record (DCIHR) in the preparation of Local Area Plans (LAPs) and the assessment of planning applications and to publish the DCIHR online. To review the DCIHR in accordance with Ministerial recommendations arising from the national Inventory of Architectural Heritage (NIAH) survey of Dublin City and in accordance with the Strategic Approach set out in Section 11.1.4 of this Chapter

To promote awareness of, and access to, the city's archaeological inheritance and foster high-quality public archaeology.

To promote archaeological best practice in Dublin city.

To promote the awareness of the international significance of Viking Dublin and to support post-excavation research into the Wood Quay excavations 1962-81.

To develop a strategy for the former Civic Museum collection and for other collections of civic interest and importance.

To investigate the potential for the erection of Columbarium Walls.

To support the implementation of the Kilmainham Mill Conservation Plan.

Dublin City Council will seek to work with Diageo to undertake a more comprehensive industrial heritage survey of the constituent historic buildings within the Guinness Brewery complex at Saint James's Gate.

To implement and promote The Dublin Principles (ICOMOS, 2011) as guiding principles to assist in the documentation, protection, conservation and appreciation of industrial heritage as part of the heritage of Dublin and Ireland.

To continue to implement actions of the Saint Luke's Conservation Plan on the basis of funds available to conserve the monument, recover the graveyard, provide visitor access, improve visual amenity and secure an appropriate new use.

APPENDIX 13.4

IMPACT ASSESSMENT AND THE

CULTURAL HERITAGE RESOURCE

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POTENTIAL IMPACTS ON ARCHAEOLOGICAL AND HISTORICAL REMAINS

Impacts are defined as ‘the degree of change in an environment resulting from a development’ (Environmental Protection Agency 2003: 31). They are described as profound, significant or slight impacts on archaeological remains. They may be negative, positive or neutral, direct, indirect or cumulative, temporary or permanent.

Impacts can be identified from detailed information about a project, the nature of the area affected and the range of archaeological and historical resources potentially affected. Development can affect the archaeological and historical resource of a given landscape in a number of ways.

- Permanent and temporary land-take, associated structures, landscape mounding, and their construction may result in damage to or loss of archaeological remains and deposits, or physical loss to the setting of historic monuments and to the physical coherence of the landscape.
- Archaeological sites can be affected adversely in a number of ways: disturbance by excavation, topsoil stripping and the passage of heavy machinery; disturbance by vehicles working in unsuitable conditions; or burial of sites, limiting accessibility for future archaeological investigation.
- Hydrological changes in groundwater or surface water levels can result from construction activities such as de-watering and spoil disposal, or longer-term changes in drainage patterns. These may desiccate archaeological remains and associated deposits.
- Visual impacts on the historic landscape sometimes arise from construction traffic and facilities, built earthworks and structures, landscape mounding and planting, noise, fences and associated works. These features can impinge directly on historic monuments and historic landscape elements as well as their visual amenity value.
- Landscape measures such as tree planting can damage sub-surface archaeological features, due to topsoil stripping and through the root action of trees and shrubs as they grow.
- Ground consolidation by construction activities or the weight of permanent embankments can cause damage to buried archaeological remains, especially in colluviums or peat deposits.
- Disruption due to construction also offers in general the potential for adversely affecting archaeological remains. This can include machinery, site offices, and service trenches.

Although not widely appreciated, positive impacts can accrue from developments. These can include positive resource management policies, improved maintenance and access to archaeological monuments, and the increased level of knowledge of a site or historic landscape as a result of archaeological assessment and fieldwork.

PREDICTED IMPACTS

The severity of a given level of land-take or visual intrusion varies with the type of monument, site or landscape features and its existing environment. Severity of impact can be judged taking the following into account:

- The proportion of the feature affected and how far physical characteristics fundamental to the understanding of the feature would be lost;
- Consideration of the type, date, survival/condition, fragility/vulnerability, rarity, potential and amenity value of the feature affected;
- Assessment of the levels of noise, visual and hydrological impacts, either in general or site-specific terms, as may be provided by other specialists.

APPENDIX 13.5

MITIGATION MEASURES AND THE

CULTURAL HERITAGE RESOURCE

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DECEMBER 2020

POTENTIAL MITIGATION STRATEGIES FOR CULTURAL HERITAGE REMAINS

Mitigation is defined as features of the design or other measures of the proposed development that can be adopted to avoid, prevent, reduce or offset negative effects.

The best opportunities for avoiding damage to archaeological remains or intrusion on their setting and amenity arise when the site options for the development are being considered. Damage to the archaeological resource immediately adjacent to developments may be prevented by the selection of appropriate construction methods. Reducing adverse effects can be achieved by good design, for example by screening historic buildings or upstanding archaeological monuments or by burying archaeological sites undisturbed rather than destroying them. Offsetting adverse effects is probably best illustrated by the full investigation and recording of archaeological sites that cannot be preserved *in situ*.

DEFINITION OF MITIGATION STRATEGIES

Archaeological Resource

The ideal mitigation for all archaeological sites is preservation *in situ*. This is not always a practical solution, however. Therefore, a series of recommendations are offered to provide ameliorative measures where avoidance and preservation *in situ* are not possible.

Archaeological Test Trenching can be defined as 'a limited programme of intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present field evaluation defines their character, extent, quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate' (ClfA 2014a).

Full Archaeological Excavation can be defined as 'a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design' (ClfA 2014b).

Archaeological Monitoring can be defined as 'a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive (ClfA 2014c).

Underwater Archaeological Assessment consists of a programme of works carried out by a specialist underwater archaeologist, which can involve wade surveys, metal detection surveys and the excavation of test pits within the sea or riverbed. These assessments are able to access and assess the potential of an underwater environment to a much higher degree than terrestrial based assessments.

APPENDIX 14.1

BUILT HERITAGE: HISTORIC MAPS

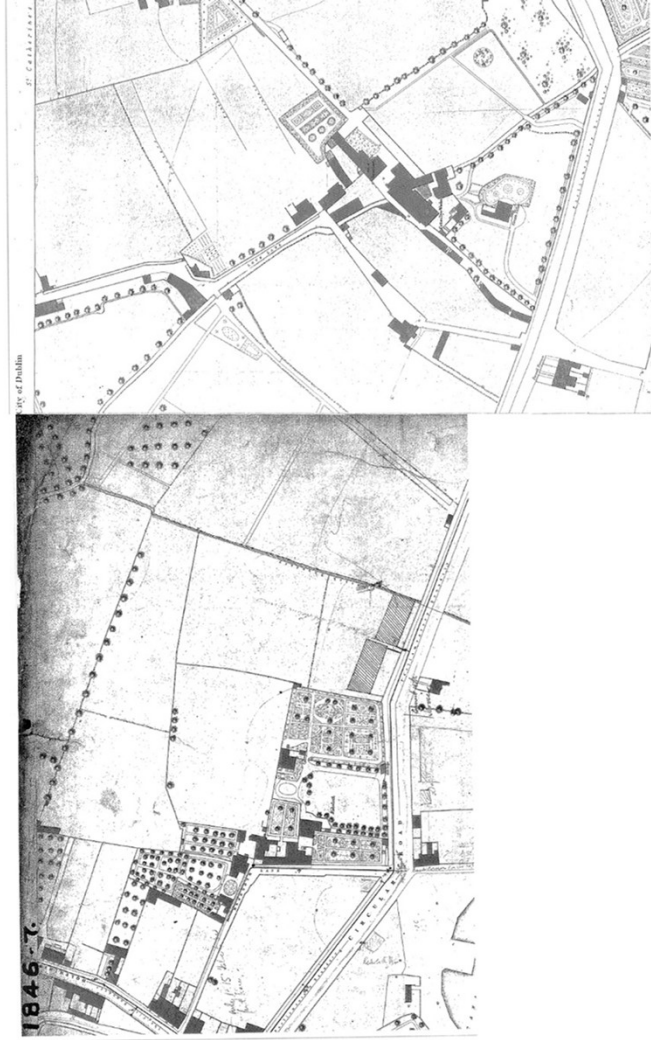
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Player Wills Factory, South Circular Road, Dublin 8.

Historic Maps

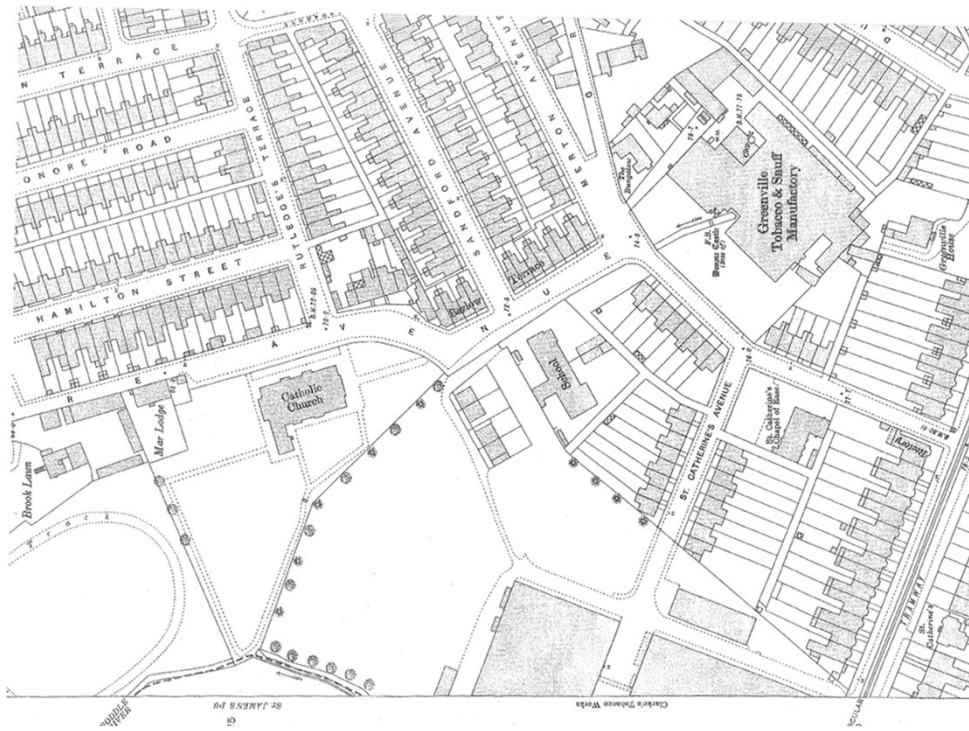


1. Extract from Ordnance Survey Map, 1838-47

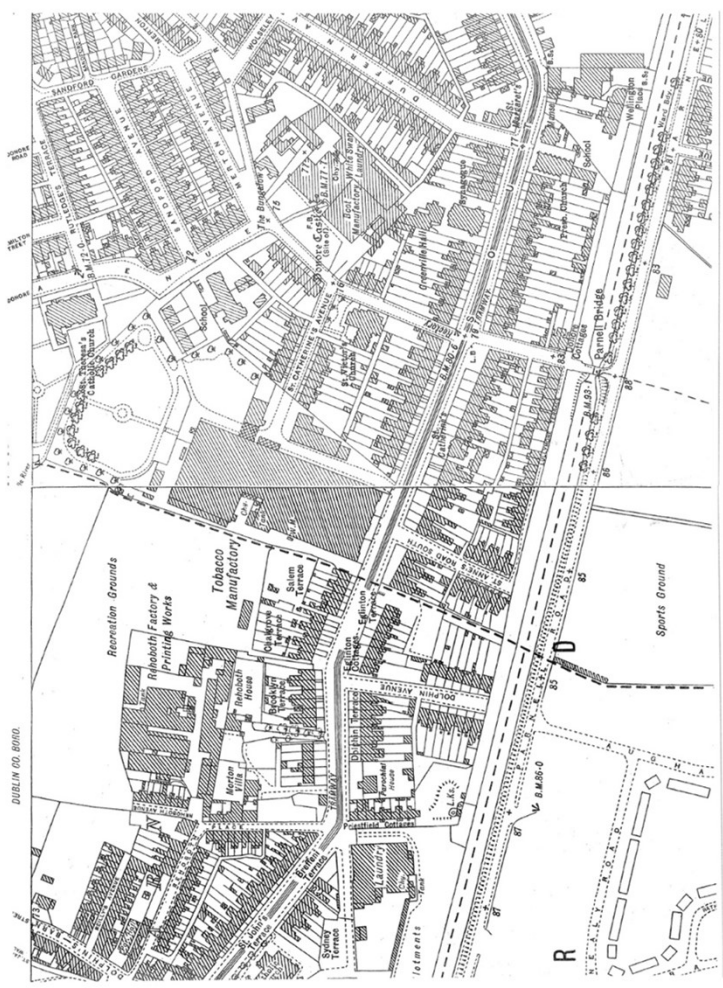


2. Extract from Ordnance Survey Map, 1864-66

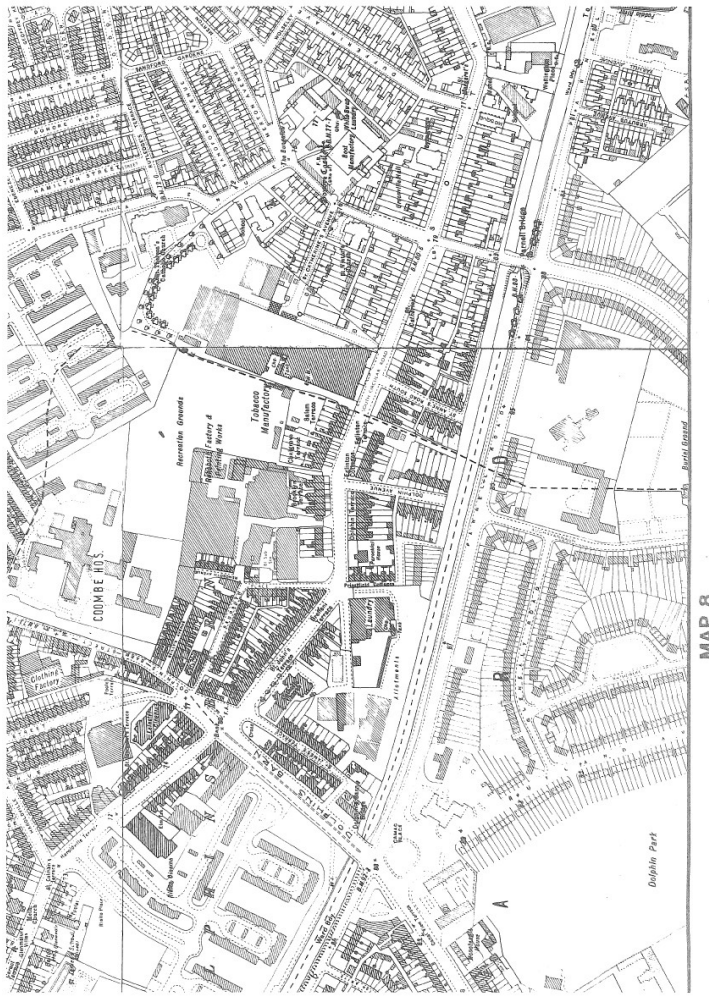




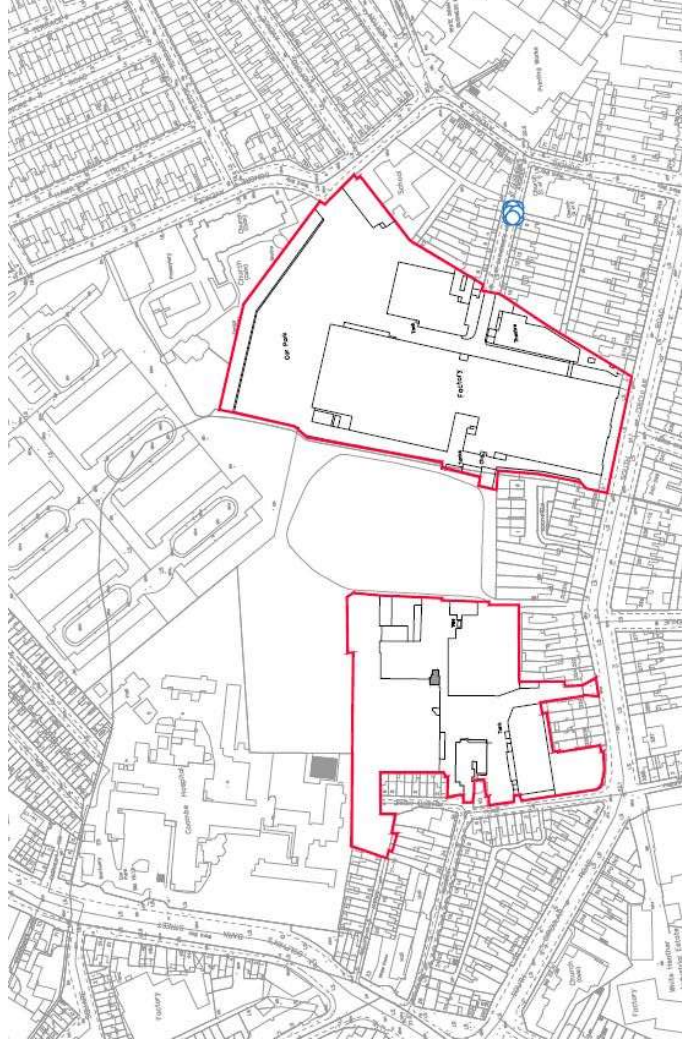
5. Extract from Ordnance Survey Map, 1927-28 showing partial view of the eastern section of the site. Mapping for the western section was not available for this date.



6. Extract from Ordnance Survey Map, 1943-62



7. Extract from Dublin Corporation Planning Map, 1985.



8. Existing Site Plan, HJL Architects

APPENDIX 14.2

BUILT HERITAGE: HISTORIC PHOTOS

AND IMAGES

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Player Wills Factory, South Circular Road, Dublin 8.

Historic Photographs and Images



1. 1916 Aerial Photograph of the subject site, prior to the development of the tobacco factory.

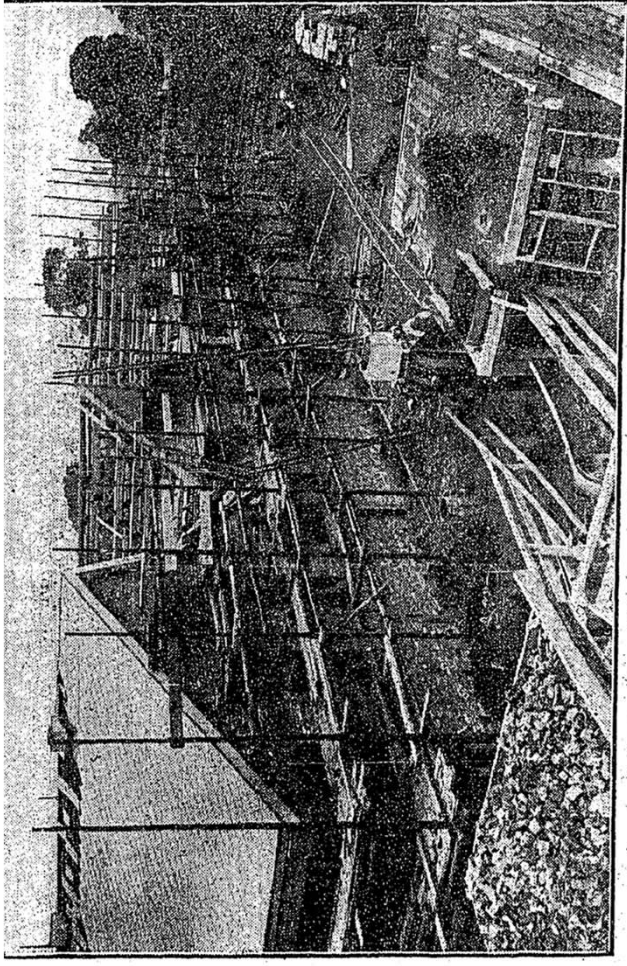


Photo by This view of the new tobacco factory for Messrs. Clarke shows the extent of the building to the north. *Irish Times.*

2. Photo in Irish Times, September 6th 1923

NEW TOBACCO FACTORY FOR DUBLIN

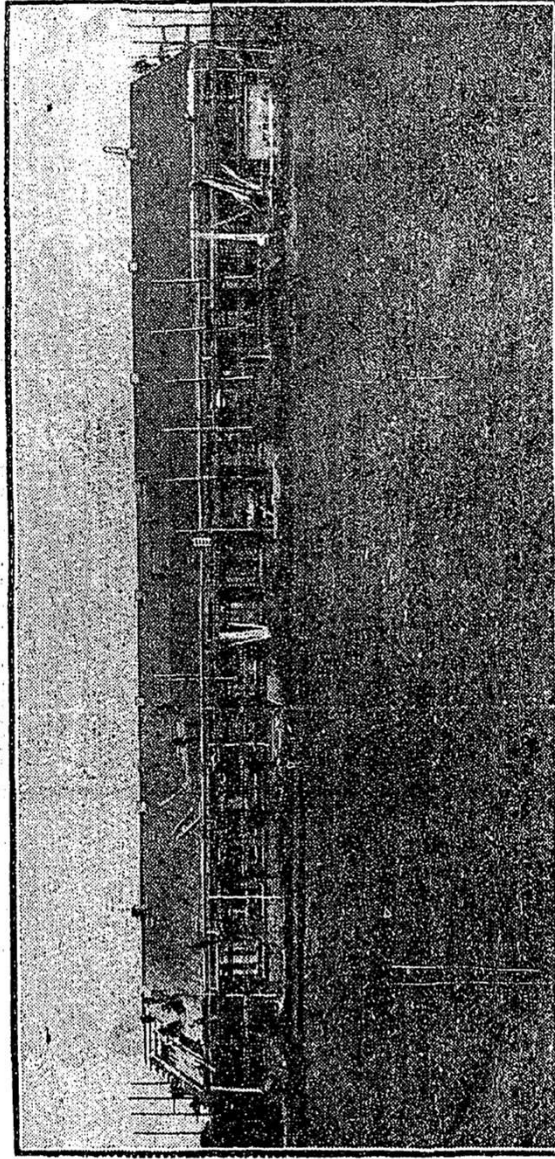


Photo by]

The new factory as seen from the South Circular road

[Irish Times.

3. Photo in Irish Times, September 6th 1923

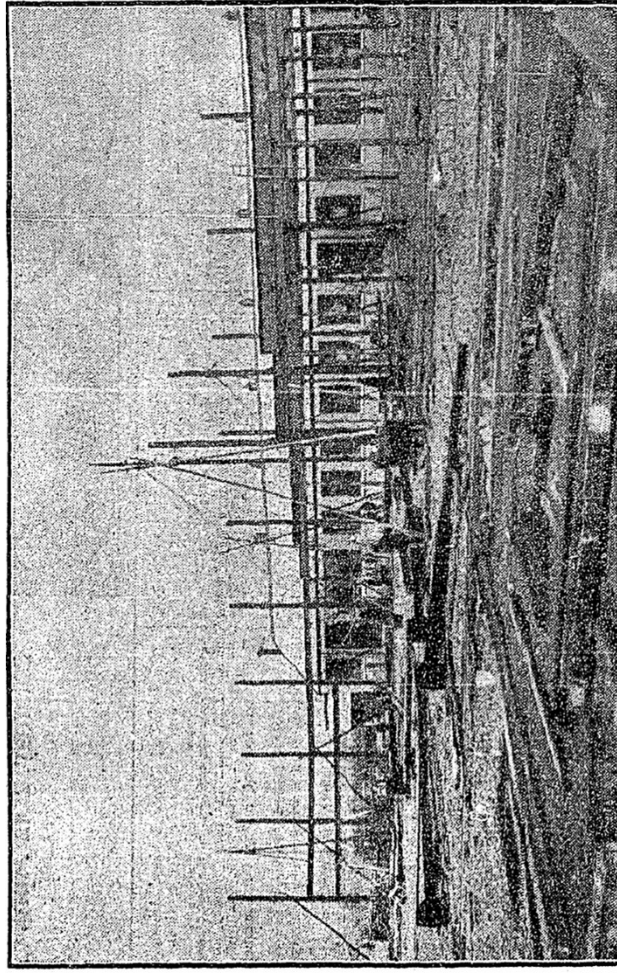


Photo by]

This view shows the erection of the steel structure for the No. 2 Factory. No. 1 Factory is seen in the background.

[Irish Times.

4. Photo in Irish Times, April 10th 1924

FACTORY BUILDING IN DUBLIN

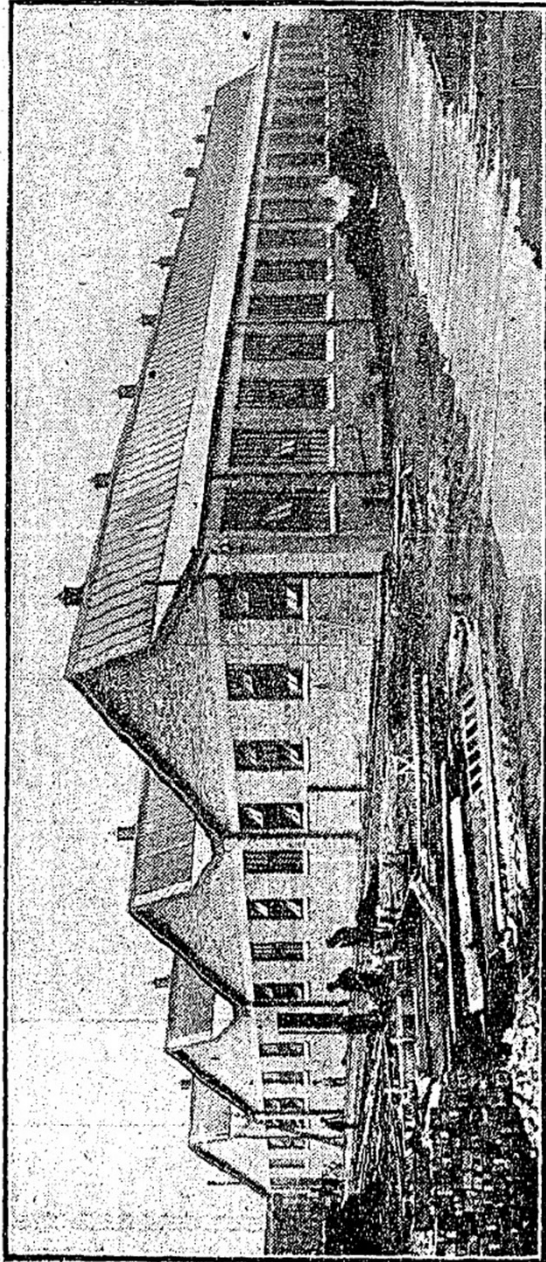
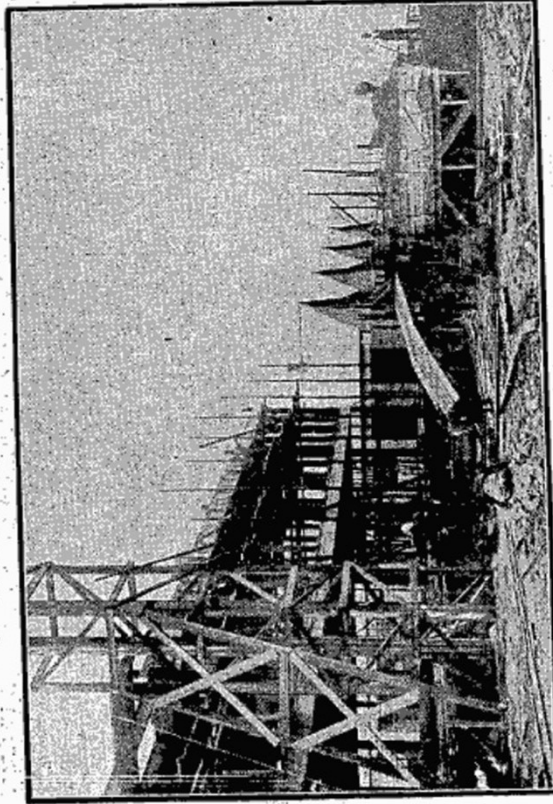


Photo by J.

A View of the No. 1 Factory.

[Irish Times,

5. Photo in Irish Times, April 10th, 1924.

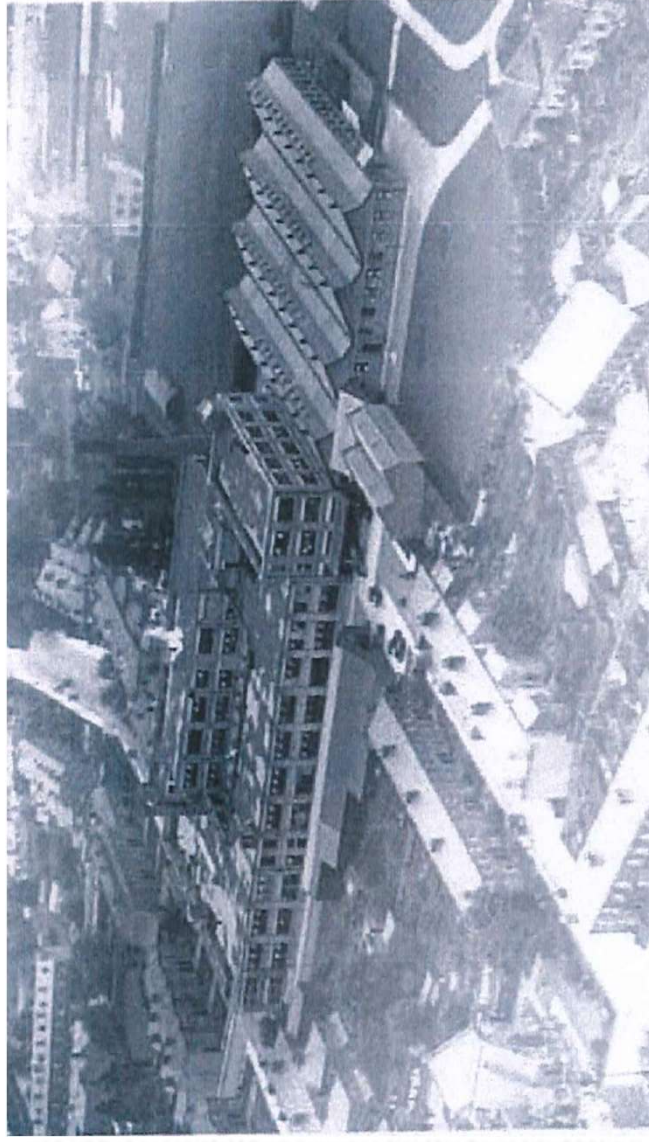


A view of the extensive new premises of Messrs. Clarke and Sons' tobacco factory, which is in course of erection at Dolphin & Barn. Portion of the factory is already completed, and gives employment to a large band of workers. (Freeman's Photo.)

6. Photo in Freeman's Journal, November 11th 1924



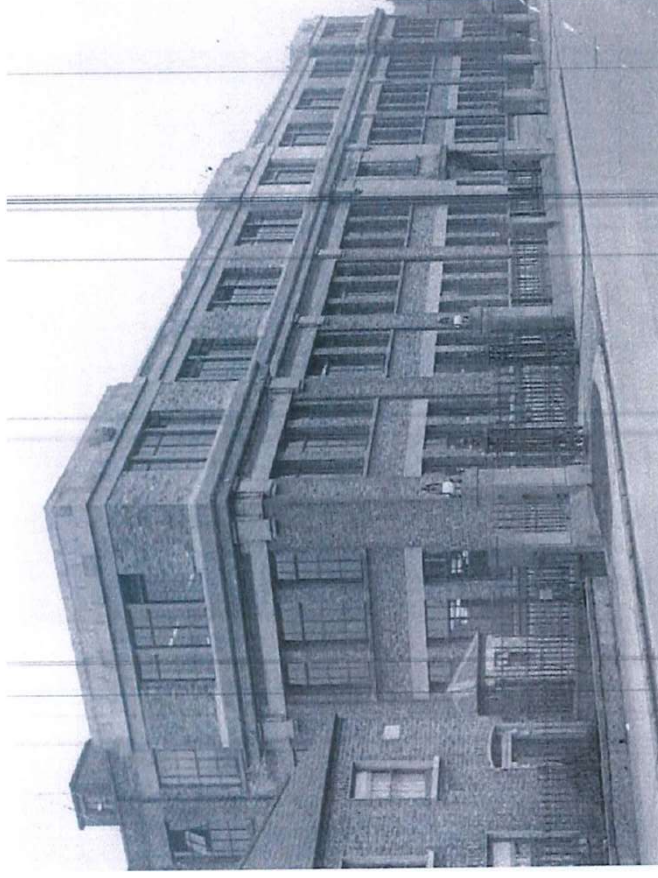
7. Advert from Connacht Tribune, April 16th 1927



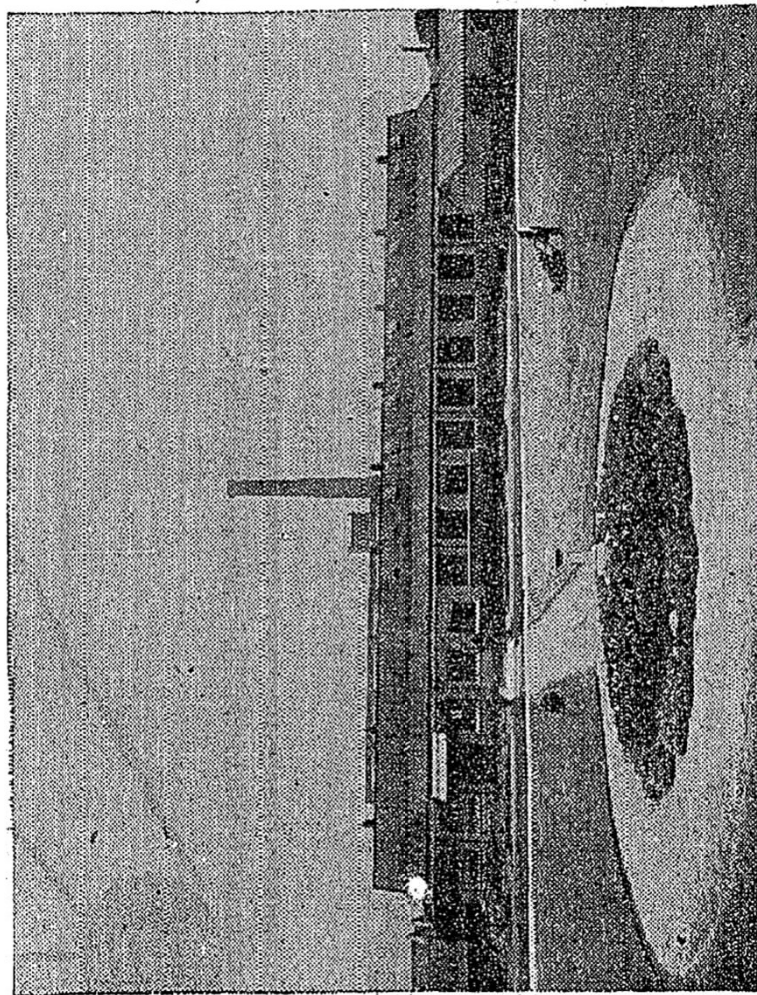
8. Undated aerial photograph, showing the factory in the mid-late 1920s.



9. Undated photograph of the front façade along South Circular Road, showing the south and east elevations in the mid-late 1920s.

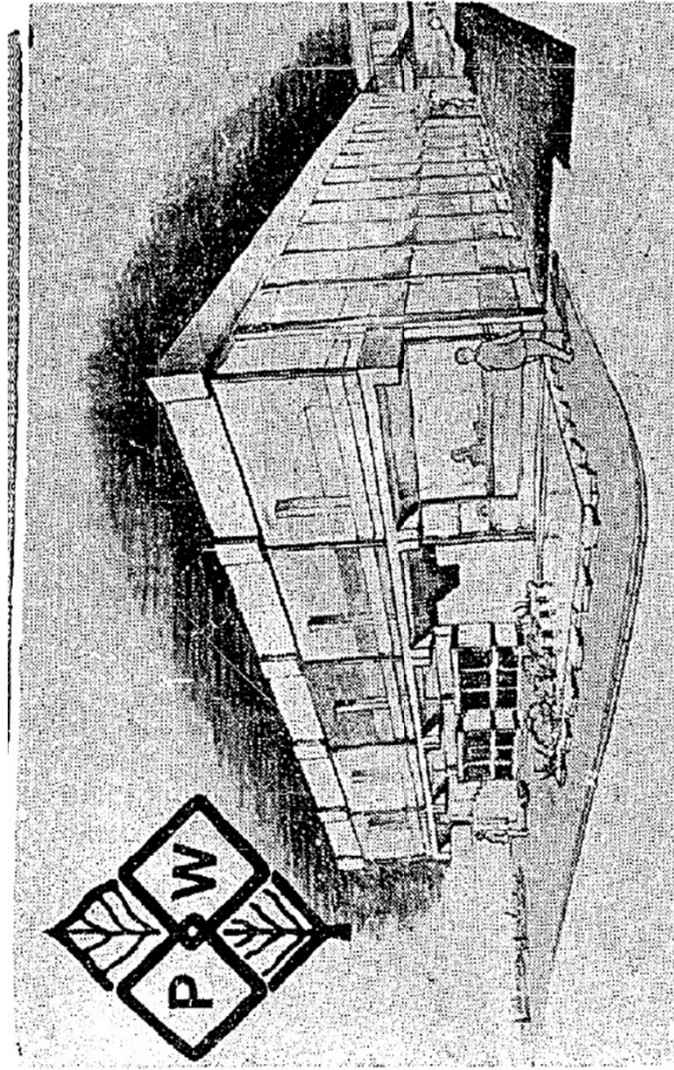


10. Undated photograph, showing the factory following the late 1920s addition of the second floor.



Rear view of Messrs. Wills's tobacco factory, Dublin.

11. Photo in Irish Times, June 21st 1939



An architect's drawing of the proposed conference hall, to be built at the factory of Player and Wills (Ireland) Ltd., South Circular Road, Dublin. Top left is the company's symbol, which illustrates the coming together of the two famous names by featuring the letters P and W linked together in a stylised version of a tobacco leaf.

12. Photo in Irish Independent, March 30th 1967



13. March 1955 Aerial Photo, MOR905 National Photographic Archive.



14. March 1955 Aerial Photo, MOR908 National Photographic Archive.



15. March 1955 Aerial Photo, MOR909 National Photographic Archive.



16. May 1955 Aerial Photo, MOR1190 National Photographic Archive.



17. 1959 Photo, Irish Photo Archives Ref B224-860



18. 1959 Photo, Irish Photo Archives Ref B224-855



19. 1959 Photo, Irish Photo Archives Ref B224



20. 1961 Photo, Irish Photo Archives Ref B761 B762



21. 1961 Photo, Irish Photo Archives Ref B761



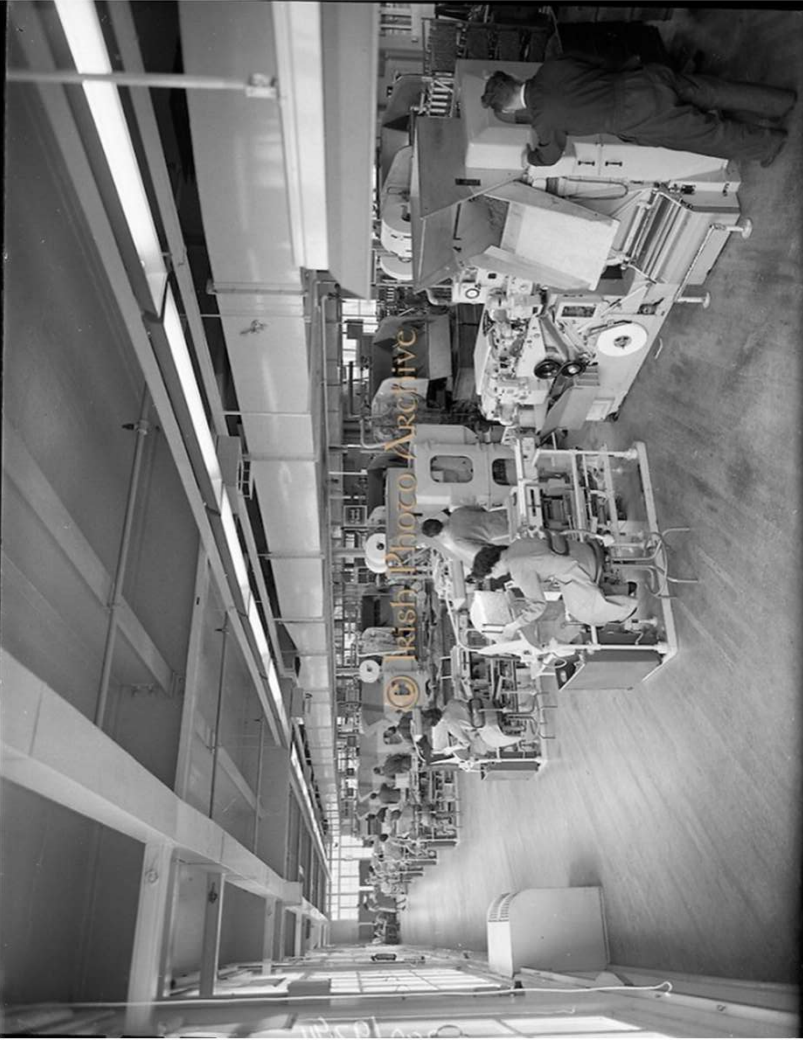
22. 1961 Photo, Irish Photo Archives Ref B761-8996



23. 1961 Photo, Irish Photo Archives Ref B762



24. 1961 Photo, Irish Photo Archives Ref B768



25. 1961 Photo, Irish Photo Archives Ref B782



26. 1961 Photo, Irish Photo Archives Ref B796



27. 1965 Photo, Irish Photo Archives Ref C477



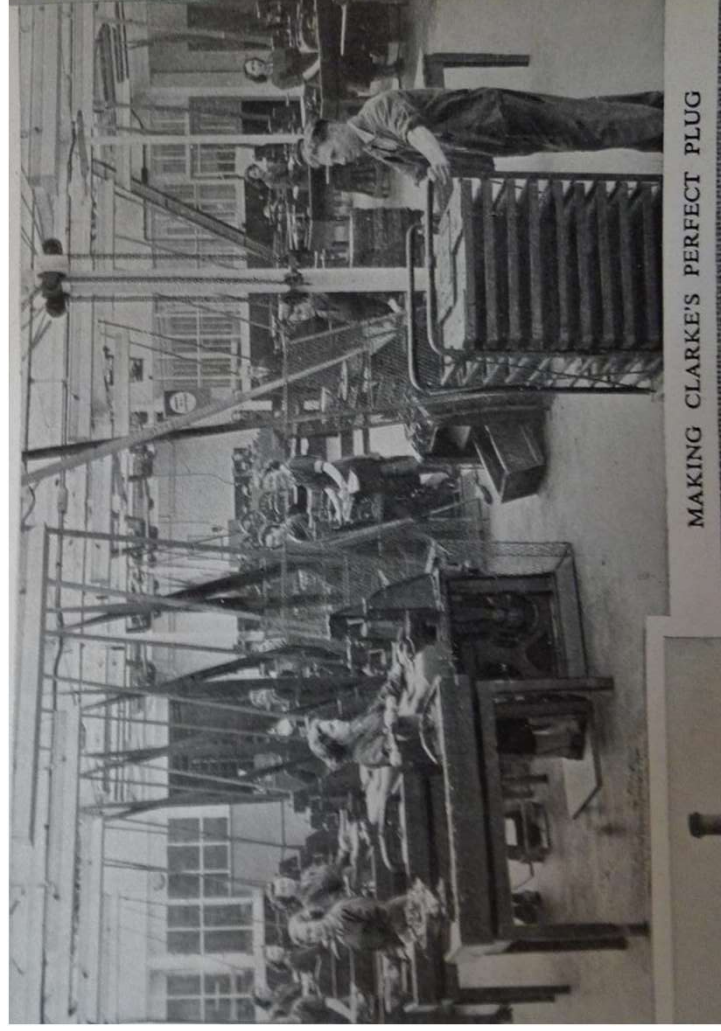
28. 1965 Photo, Irish Photo Archives Ref C477-8405



29. 1965 Photo, Irish Photo Archives Ref C477-8406



30. 1969 Photo, Irish Photo Archives Ref D322



31. Undated Interior Photo

APPENDIX 14.3

BUILT HERITAGE: HISTORIC

NEWSPAPER EXTRACTS

VOLUME III

APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

PLANS FOR NEW WORKS IN DUBLIN.

Plans for new buildings and reconstruction work in Dublin were passed by Mr. Horace T. O'Rourke, City Architect, during the two weeks ending 7th July as follows:—

Marino Housing Scheme, model dwellings, types "A," "B," "C," "D," "E," and "F."—Dublin Corporation Housing scheme.

Donore avenue (rear), extension to shed (cigarette making department)—Messrs. T. P. and R. Goodbody.

Harbour Court, new premises—Messrs. Hamilton, Long and Co.

North Wall Quay, creosoting plant—Messrs. T. and C. Martin, Ltd.

Circular road, South, tobacco factory—Messrs. W. Clarke and Son, Ltd.

Alexandra road, boiler house and amended drainage—The Dublin Port Milling Co., Ltd.

Abbey street, Upper (10a), alterations and additions—Messrs. Swanzy, Kilcoyra and Co.

Iona road (68), garage—Mr. P. J. Kelly.

Dominick street (rear 11), alterations to coach house loft—Mrs. A. Traynor.

James's street (51, 52), private hall—The Very Rev. Canon Magill.

James's street Harbour, shed over Dry Docks—The Grand Canal Co.

Anne street, North (10, 11), roof for garage—Cullen and Beadie.

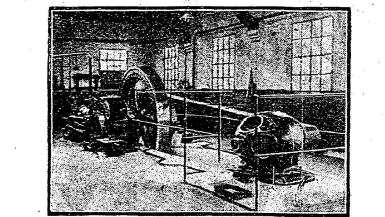
Temple View, Broadstone (2), garage—Mr. T. Connolly.

ELECTRIC LIGHTING

HANDLEY & ROBINSON, Ltd.,

ELECTRICAL AND GENERAL ENGINEERS.

50 DAWSON STREET, DUBLIN.



62 B.H.P. Blackstone Crude Oil Engine and Generator erected by us near Dublin.

CONTRACTORS TO BOARD OF WORKS.

A Selected List of Contracts Carried Out by Us.

National Education Buildings, Waterbury St., Dublin. Rubber Co., Abbey St., "Iron Improvement" Park Hospital, Leinster, Co. Dublin. The City of Dublin, Cork St., Dublin. Messrs. A. Cullen, Son, and Co., Ltd., Rosinane Park, Goodbody, Ltd., Glasham, Wick. Messrs. W. & L. Goodbody, Ltd., 8777 Mill, Glas.

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Architects

Contractors & Builders

Slates supplied by the undermentioned Quarries are approved of for Urban and Rural District Housing by the Ministry of Local Government.

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NENAGH, CO. TIPPERARY.

BENDUFF, FROE & MADRANNA SLATE QUARRIES COMPANY, Ltd.,
LEAP, CO. CORK.

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ASBESTOS-CEMENT

WERE USED FOR ROOFING

CLARKE'S NEW DUBLIN FACTORY.

Full particulars from
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24 EDEN QUAY, DUBLIN.

"Phone 5475. Wires—Kematia, Dublin."

LALLY MOTOR TRANSPORT CO.

TOURIST AND COMMERCIAL.

34 LOWER ABBEY STREET, DUBLIN.

Where Cheaper than can be booked for Excursions.

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CALWAY PATENT CONCRETE WALLING.

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Phonic Patent Partitions.

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OVER 3,000 YARDS FOR CLARKE'S TOBACCO FACTORY.

Reasonable Prices, with Certain Success.

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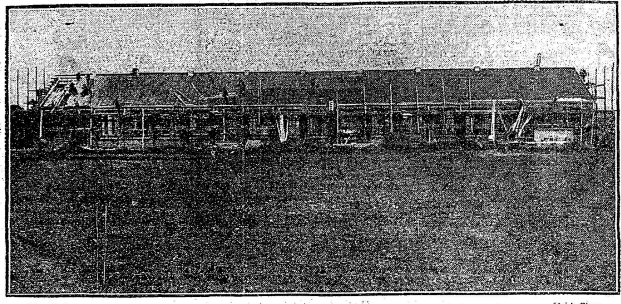
Timber, Slate and Cement Merchants
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5 High Street, Dublin
Agents and Telephone—Dublin 1222.

DANIEL P. CURTIS
45 WILLIAM STREET, DUBLIN.
Established 1873
PLUMBING, HEATING, DRAINAGE.
Ballydoyle—855. Telephone—Leinster, Dublin."

BUILDING & RECONSTRUCTION

Previous Article: 23:8:23. Next Article: 20:9:23.

NEW TOBACCO FACTORY FOR DUBLIN.



The new factory as seen from the South Circular road (Irish Times).

One result of the establishment of the Irish Free State and the exercise of its functions of leaving Custom duties has been to give an impetus to the building of tobacco factories in Dublin. Several new buildings are in course of erection, and others are being adapted to the manufacturing of this commodity.

One of the most important of the new tobacco factory schemes is that which has been started by Messrs. Wm. Clarke and Son, Ltd., on a site extending over seven acres on the north side of the South Circular road, near Dunmore avenue.

Three hundred feet back from the roadway about two hundred workmen are employed in the construction of the No. 1 factory where Messrs. Clarke hope within a short time to have several hundred Dublin workmen employed in the manufacture of tobacco.

The building covers three-quarters of an acre, is of the single-story type, with north light. It is constructed of Concrete Dublin stock brick, has a frontage of 188 feet to the South Circular road, and runs 160 feet to the north. It has been placed 300 feet back from the main road, because it is only the first section of a larger scheme of buildings which the firm contemplates, and it is probable that the space between the road and the No. 1 factory will ultimately be occupied by a much more extensive and imposing building than that now in course of erection.

The No. 1 factory, shown in our illustrations, is being constructed by Messrs. McLaughlin and Harvey, Ltd., to the design of Messrs. Redett and Harrington, architects, St. Stephen's Green, whose plans were prepared in collaboration with the Engineer's Department of the Imperial Tobacco Co., Bristol.

The east-front columns used in the construction of the factory were supplied by Messrs. Tonge and Taggart.

The steel principals carrying the roof were the work of Messrs. J. and C. McGoughlin, Ltd., Great Brunswick Street.

The factory is being roofed throughout with the well-known freestone Poilite tiles, and the adjoining houses will be covered with the recent coloured Poilite Tiles, which will give them a very picturesque appearance. The whole of the roofing is being fixed under the personal supervision of Mr. Peter Keeney, 24 Eden Quay, Dublin, on behalf of the makers.

Mr. W. Simon, Dublin, at 200 Grosvenor Street, Dublin, secured instructions for the laying of "Decolite" business flooring over the entire concrete surface of the factory floor. The colour will be dull red.

Adjacent to the factory four cottages are being constructed for the accommodation of the foremen who are to be brought across the Channel to give the necessary technical instruction to the Dublin workers, it being the intention of the firm to employ local labour for every possible post.

Messrs. Clarke at present manufacture tobacco in Liverpool, but their scheme provides for the complete removal of all manufacturing from the English city to Dublin, and when the entire building scheme at the South Circular road is completed about a thousand people will be employed.

The family of Clarke have had a long connection with Ireland, especially in the City and County of Cork, where several members have resided for a considerable period.

PLANS FOR NEW WORKS IN DUBLIN.

Plans for new buildings and reconstructional works were passed by Mr. Horace T. O'Rourke, City Architect, during the two sittings ending September 4, as follows:

By Mr. O'Rourke, during the two sittings ending September 4, as follows:

By Mr. O'Rourke, during the two sittings ending September 4, as follows:

By Mr. O'Rourke, during the two sittings ending September 4, as follows:

TENDERS WANTED.

By Mr. P. J. Neary for the erection of new bank at Oungah, for the Minister and Minister of Public Works.

By Mr. P. J. Neary for the erection of new bank at Oungah, for the Minister and Minister of Public Works.

By Mr. P. J. Neary for the erection of new bank at Oungah, for the Minister and Minister of Public Works.

HOUSING SCHEMES

Architects, Builders, Surveyors HAVE AT THEIR DISPOSAL IN

Turner's Asbestos Cement Slates

a means of reducing cost of slates about 50%, with a further reduction of 40-50% on understructure, with the resultant roof thoroughly dry and impervious to damp, scale, or rot.

AGE CANNOT ROT THEM NOR CLIMATE AFFECT THEM.

LIST OF RECENT WORK AND PRICES ON APPLICATION TO

CHAS. INGRAM & CO., Ltd.,

Roofing, Ornamental Glass, and Flooring Specialists, 199 Great Brunswick Street, Dublin.

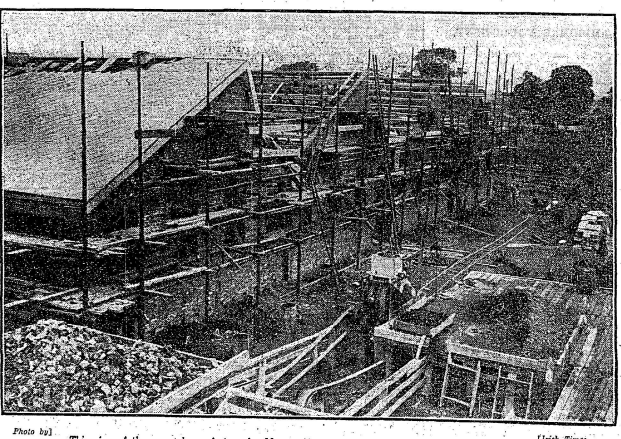
DUBLIN NOTES.

The South Dublin Rural District Council accepted the tender of Messrs. J. Foran and Son, Dublin's Barn, for repairs to Tallaght Carnegie Library.

Rathdown No. 1 Rural District Council accepted the tender of Mr. Robert Butler, Kiltiernan, £150, for erection of 170ft. of wall at Sandymount.

The Streets Committee recommended the Corporation to accept the tender of Stewart and Pitt, Ltd., to supply a portable petrol driven concrete mixer at £227. Sixteen tenders were submitted.

The restoration of the Land Registry block of offices at the Four Courts, which were illustrated in our last "Building and Reconstruction" issue, is now completed. The entrance to the Central Office is now in Chancery street, opposite the Police Courts.



This view of the new tobacco factory for Messrs. Clarke shows the extent of the building to the north. (Irish Times).

Heating, Electrical and Sanitary Engineers.

EXCHANGE BUILDINGS, Ltd.

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London Address 24 HIGHBURY GROVE, N. 5.

Licensed Contractors for Hennibique's Patent Ferro-Concrete Constructions.

List of some important Works carried out by us:—

New Tobacco Factory

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FOR

Messrs. Wm. Clarke & Son, LTD.,

Liverpool.

GOVERNMENT OFFICES AND ROYAL COLLEGE OF SCIENCE, Upper Merrion Street, Dublin.

CLERY'S BUILDING, O'Connell Street.

New Offices for INDEPENDENT NEWSPAPERS, Ltd., Middle Abbey Street, Dublin.

TYLER'S PREMISES AND SHOPS, Upper O'Connell Street and Earl Street.

FERMENTING HOUSE, &c., Robert Street, for A. Guinness, Son, and Co., Ltd.

FRANCIS STREET MARKETS.

PLAY CENTRE, St. Patrick's Park.

NEW OFFICES AND BUILDINGS at Valentia Island, for Western Union Cable Co.

HOUSING SCHEMES

Architects, Builders, Surveyors HAVE AT THEIR DISPOSAL IN

Turner's Asbestos Cement Slates

a means of reducing cost of slates about 50%, with a further reduction of 40-50% on understructure, with the resultant roof thoroughly dry and impervious to damp, scale, or rot.

AGE CANNOT ROT THEM NOR CLIMATE AFFECT THEM.

LIST OF RECENT WORK AND PRICES ON APPLICATION TO

CHAS. INGRAM & CO., Ltd.,

Roofing, Ornamental Glass, and Flooring Specialists, 199 Great Brunswick Street, Dublin.

J. & C. M'GLOUGHLIN, LTD.

ART METAL WORKERS,

CONSTRUCTIONAL ENGINEERS.

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This firm have supplied all the Steel Roof Principals for the above Factory.

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Commer Tip-Waggons are used all over the world by the most astute contractors and they are doing splendid work in Ireland to-day.

Sole Representatives for Ireland—**CO. WICKLOW GARAGE** and MOTOR TOURING CO. Main Street, Bray.

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SPECIALITIES—Cast Iron Tanks, Manhole Covers and COLUMNS.

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"Phone 1146. Telegrams—"Tonge, Dublin."

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Telegrams—"Oxy-zinc, Cannon." Telephone—11537. Works, LONDON N.E.10.

Photo Standalone 1 -- No Title

The Irish Times (1921-Current File); Sep 6, 1923;

ProQuest Historical Newspapers: The Irish Times and The Weekly Irish Times

pg. 4

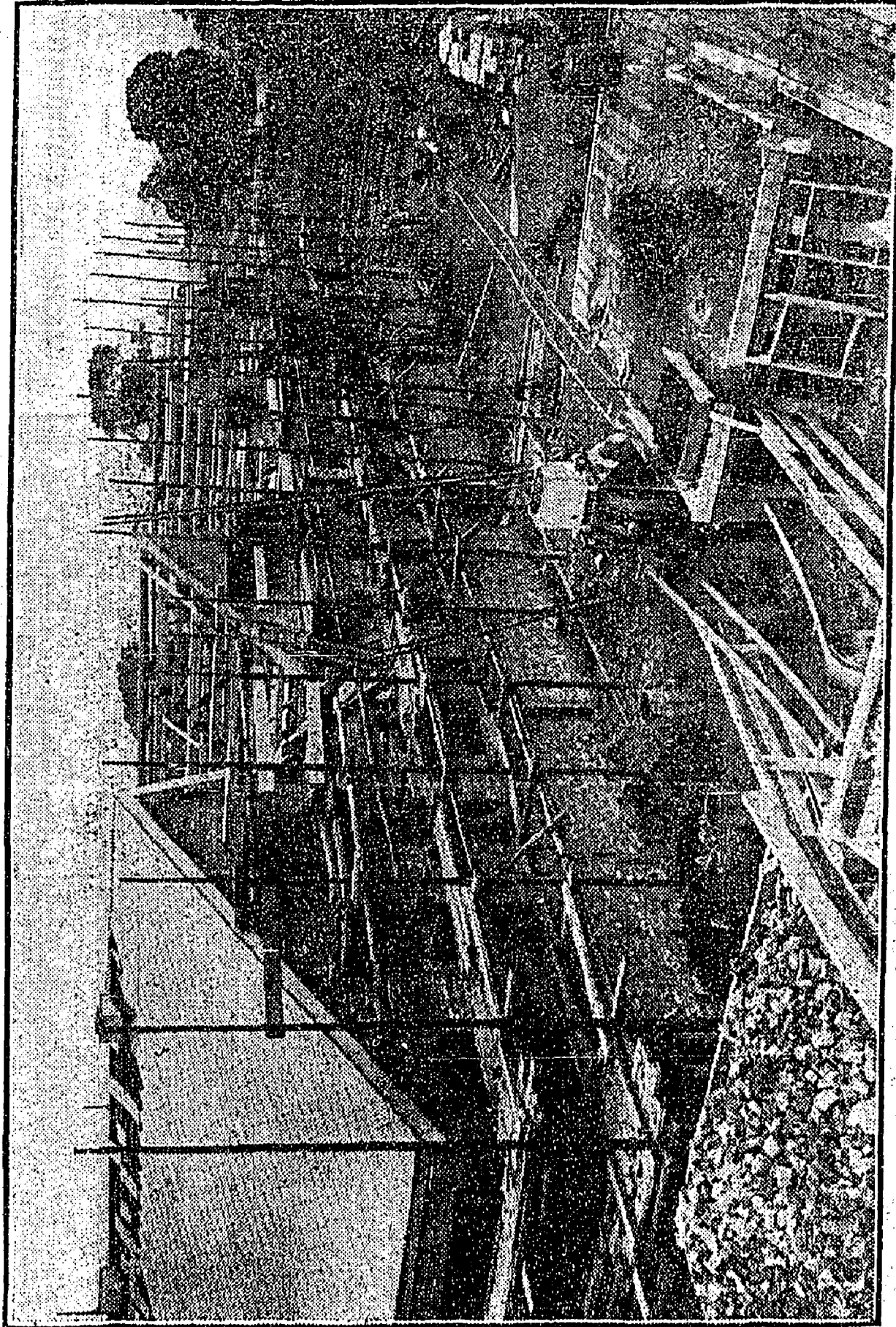


Photo by]

This view of the new tobacco factory for Mesars. Clarke shows the extent of the building to the north.

[Irish Times.

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NEW ROOFING.

The necessity for economy in building works is likely to assist in the extension of the use of pantiles made of asbestos in place of slates and ordinary tiles. Experience has proved the utility as well as beauty of these pantiles, and they are becoming more and more popular with builders and architects. They are available in a variety of colours, which, when used in housing schemes, makes for brighter surroundings. The surface of the pantiles varies from smooth to rough, and may therefore be laid over the roof according to taste. The chief artistic value of this tile is the bold roll which casts a shadow, thereby giving a light-and-shade effect to the roof. An important practical value is that the roofing weighs only about two or three-quarter hundredweight per square, as compared with eight or nine hundredweight for ordinary clay tiling or slate roofing, with the result that the substructure of the roof can be reduced by one-half, and, in addition, the cost of this tiling is also about twenty-five per cent. less than the cost of clay pantiling. The new roofing tones to the weather. Asbestos cement tiles of varied colours were supplied by Bell's Poilite and Everite Co., Ltd., 24 Eden quay, for the roofing of 198 houses erected by the Dublin Corporation on the Fairbrothers' Fields area. The new tobacco factory facing the South Circular road for Messrs. Clarke and Son, Ltd., is covered with fire-proof Poilite tiles.

PLANS FOR BUILDING WORKS IN DUBLIN

The following plans for new works and reconstruction were passed by Mr. Horace T. O'Rourke, City Architect of the Dublin Corporation, during the two weeks ending 27th October:—

Clonliffe road, 107, alterations—Mr. L. A. Cribben.

Merchant's quay, 34, rebuilding—Miss Julia Nea.

Connaught street, rear 66, store—Mr. Rumbold.

Bridge street, 19, 21, roof—Mr. Bolster.

Canal Bridge, Drumcondra, garage—Messrs. H. Braine and Sons.

O'Connell street, Lower, rear 8, connecting bridge over Harbour court—Messrs. Ferguson and Boni.

Dame street, 27, 28, alterations—Messrs. Hely, Ltd.

O'Connell street, Upper, Carlton Cinema alterations.

Russell street Laundry, additions—The Phoenix Laundry.

Circular road, South, 66a, factory—Messrs. Twinem Bros.

Circular road, South, No. 2, tobacco factory, foundations—Messrs. William Clarke and Son, Ltd.

Gardiner street, Lower, rear 47, 48, extension of hall—The Co-operative Butchers' Society.

Abbey street, Lower, 26, alterations and additions—Mr. J. Payne.

Summerhill, rear 121, shed—Mr. E. McDonald.

Buckingham street, Lower, 29, alterations and additions—Mr. A. Forbes.

Richmond road, Drumcondra, rear 1, motor shed—Mr. J. Brennan.

Grangegormau, Upper, 84, sheds—Mr. H. P. Sheridan.

PLANS FOR BUILDING WORKS IN DUBLIN

The Irish Times (1921-Current File); Feb 7, 1924;

ProQuest Historical Newspapers: The Irish Times and The Weekly Irish Times

pg. 4

PLANS FOR BUILDING WORKS IN DUBLIN.

Plans for the following new building works and alterations were approved by Mr. Horace T. O'Rourke, City Architect, Dublin Corporation, during the two weeks ended 2nd February:—

Russell Street Laundry Roof over girls' dressing-room and laundry store. The Phoenix Laundry.

Kilmainham Lane — Repairs. Messrs. Murray and Co.

Stephen's Green, rear 139—Lavatories. Mr. G. Brown.

Talbot street, 9—Additions. Messrs. Tarlo.

Amiens street, 61—Shop front. Mr. Price.

Clanwilliam Place, 3—Repairs. Mr. J. A. Campbell.

Bride street (old bird market), 74-75—Stables. Mr. William Royal.

Gloucester street (South), 27-30—Stores. Messrs. Duan and Co

South Circular road, No. 1 Tobacco Factory—Temporary annexe. Messrs. Clarke and Son.

South King street, 13-14—Alterations and additions. Messrs. John O'Neill, Ltd.

Grafton street, 31—Lavatory—Mr. L. Wine.

PLANS FOR BUILDING WORKS IN DUBLIN.

Plans for new buildings and works of reconstruction were passed by Mr. Horace T. O'Rourke, City Architect of Dublin Corporation, during the two weeks ending 28th June, as follows:—

Prospect road, Glasnevin, engineering shop—Mr. Cahill.

Botanic Road Tobacco Factory, railing on South boundary—Messrs. J. Player and Sons.

Wolseley street, S.C.R., 26, shed—Mr. J. Price.

Marino Crescent, Malahide road, rear 1, shop—Mr. Woods.

St. Ignatius road, rear 15, shed—Mr. P. Levins.

Rathdown road, Phibsborough, rear 44, garage—Mr. O'Connor.

Parnell street, 13, rebuilding centre wall, etc.—Mr. A. McCormack.

North Circular road, rear 615, garages—Mr. D. Molony.

Adjoining 14 Richmond Parade, N.C.R. (on canal bank), temporary shed—Mr. James Conroy.

South Circular Road Tobacco Factory, temporary carpenters' shed—Messrs. William Clarke and Son.

Harcourt street, 33, thrust-out bathroom—Miss McDermott.

Hamilton street, S.C.R., rear 33, shop—Mrs. Graham.

Donore avenue, S.C.R., church—The Very Rev. Father Hayes, P.P.

Leinster avenue, North Strand, 68, bicycle shed—Mr. Owen Finnegan.

Leinster street, South, 11, rebuilding wall, etc.—Mr. W. H. Hatte.

Stephen street, Upper, 7, garage—Mrs. Dunne.

Botanic Road Tobacco Factory, French drain on South road—Messrs. J. Player and Sons.

Abbey street, Upper, 35, store—Mr. T. Fallon.

West road, four houses—St. Barnabas' Public Utility Society.

Seafeld road, eight houses—Messrs. O'Scannill and others.

South Earl street and Wilson's terrace, eighteen cottages—Mr. J. Cross.

Lower Grangegorman, hay barn—Mr. William Kavanagh.

Rathdown road, N.C.R., rear 43, garage—Mr. O'Donohoe.

South Circular road, No. 2 Tobacco Factory—Messrs. William Clarke and Sons.

Chancery street, rear 18, 19, 20, stores—Mr. W. J. O'Hara.

Phibsborough road, 122, garage—Mr. Robert Barton.

PLANS FOR BUILDING WORKS IN DUBLIN.

The following plans for new buildings and works of reconstruction in Dublin have been approved by Mr. Horace T. O'Rourke, City Architect:—

Marlborough place (tobacco factory)—Murray, Ltd.

Castle avenue (3 bungalows)—J. J. Fitzpatrick.

2 Iona Crescent (garage)—J. Dowd.

Shandon Drive (9 houses)—George Byrne.

110 North Circular road (shop)—McGrath.

Griffith avenue, Marino (2 houses)—D. Caulfield.

26 Essex quay (alterations)—Edward Kearney.

67 Tyreconnell road (addition)—V. Rochford.

Lord Edward street (coal shed)—Working Boys' Home.

South Circular road (extension to factory)—Imperial Tobacco Co.

2 Charlemont street (rebuilding)—S. Solomons.

122 Arran road (garage)—P. O. Golain.

22-23 Dawson street (alterations)—L. Wine.

PLANS FOR BUILDING WORKS IN DUBLIN

The Irish Times (1921-Current File); Feb 7, 1929;

ProQuest Historical Newspapers: The Irish Times and The Weekly Irish Times

pg. 3A

PLANS FOR BUILDING WORKS IN DUBLIN.

The following plans for new buildings and works of reconstruction have been passed by Mr. Horace T. O'Rourke, City Architect, Dublin Corporation:—

Parkgate street (boiler house and cloak-room, lavatory, etc.)—Lucan Dairy.

Lower Mount street (alterations and new operating block)—Sir Patrick Dun's Hospital.

Bantry road (temporary shed)—Wm. Shaw.

South Circular road (shelter)—Maple Laundry Co.

Upper Drumcondra road (three shop dwellings)—Whitehall Public Utility Society.

22 Duke street (lock-up shop)—C. E. McEvoy.

South Circular road (extension of factory)—Clarke's Tobacco Factory.

Kincora road (bungalow)—E. J. Ryan.

Upper Drumcondra road (house)—J. J. Flanagan.

BIG PREMISES TO BE OFFERED FOR SALE.

OPPORTUNITY FOR AN ENTERPRISING FIRM.

With unemployment as yet an unsolved problem, industrial development, no matter how great or how small, would be welcomed in Dublin.

When Messrs. W. D. and H. O. Wills, a branch of the Imperial Tobacco Company (of Great Britain and Ireland), Limited, transferred their business from Marrowbone lane to larger premises on another of the company's sites in Dublin in August last, in order to meet increased requirements, they left empty a factory which was large enough to enable them to employ between 500 and 600 hands. Now these premises, on which Messrs. Wills spent as much as £86,000 on improvements while they were in occupation, are in the open market. An opportunity thus has come the way of any enterprise desirous of developing business in a city where, it will be admitted, there is room for industrial expansion.

An inspection of the premises in Marrowbone lane suggests that here are premises which are eminently suitable for the business of, say, wholesale clothiers, or, for that matter, almost any manufactory. There are three sections, having, respectively, two, three, and five floors, and all departments are well lit and well ventilated. Particularly does this remark apply to the top premises; for Messrs. Wills, at considerable cost, reconstructed the roof, which is almost entirely glass.

Substantially built and fitted on modern lines, the premises comprise the main factory, with a floor area of 34,720 superficial feet, and a large suite of offices, with restaurant and every accommodation for a large staff. The factory has its own power plant, for use in emergency, and there are fitted an extension sprinkler installation and steam heating apparatus. There is an extensive yard, and additional ground suitable for extension, if required.

The premises will be offered for sale by auction by Messrs. Battersby and Company, 39 Westmoreland street, Dublin, on the 12th December next.

DUBLIN'S NEW BUILDINGS.

£400,000 EXPENDED IN 1929.

Four hundred thousand pounds is the estimated cost of the principal buildings which have been either started or completed in the City of Dublin during the year 1929. Though this is the total of the sums which were certified by the architects concerned to be expended on the various buildings when the plans were lodged with the authorities for approval, it may be taken that minor changes and extras found necessary as the buildings proceeded and developed will involve, roughly, another ten per cent., or £40,000, in addition to the total cost.

The list of buildings is headed by the Savoy Cinema, the estimate for the completion of which was £58,000. The East Wall Tobacco Company's premises (for Messrs. Gallaher and Co., Ltd.) comes next with an expenditure of £42,000, while the Monastery built for the Christian Brothers at Fairview is third with an outlay of £27,000.

HOSPITALS.

The X-ray department and dormitory for the Mater Hospital in Eccles street was erected at a cost of £19,000; Sir Patrick Dun's Hospital authorities spent £8,400 on an operation theatre; £4,500 is the estimated sum for an extension to St. Patrick's Hospital (James's street), and £3,600 for an addition to the Rotunda Hospital.

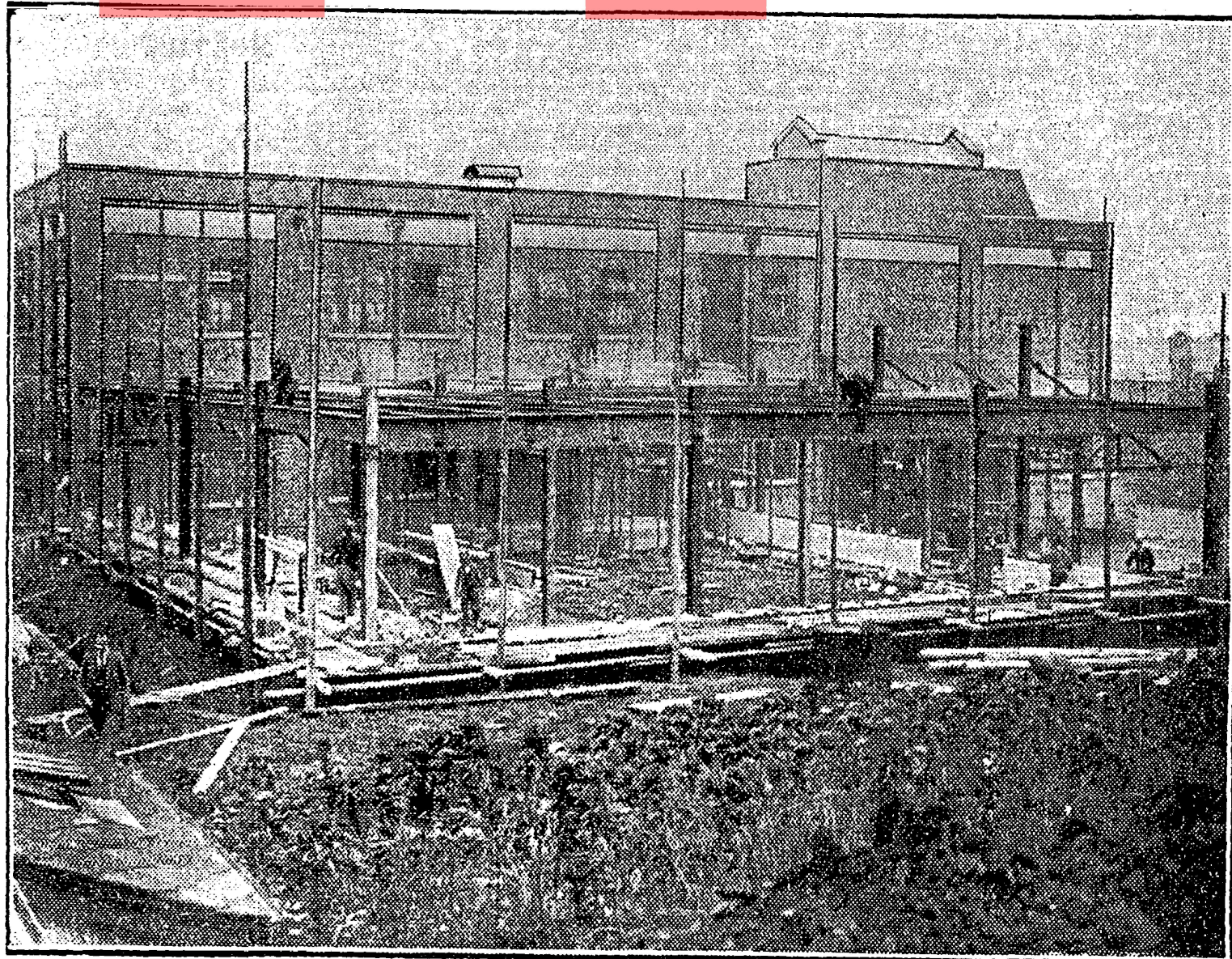
BUSINESS CONCERNS.

In industrial and business extensions, Messrs. Jacob and Co., Ltd., Bishop street, extended their premises at a cost of £14,000; the rebuilding of the Royal Hibernian Academy site in Abbey street is estimated to cost £12,000; the rebuilding on the site of the Edinburgh Hotel, Sackville street, cost £9,000; premises in Dame street, £8,000; premises in South Great George's street, for the National Bank, £9,000; extension to Messrs. Williams and Woods, in Cherry lane, £6,000; bakery in Marrowbone lane, £7,500; showrooms for the Gas Company, Leinster Market, £6,000; extension to the tobacco factory in South Circular road, £6,000; and new dairy premises in Parkgate street, £7,500.

The other buildings include Mercer House Tenement Dwellings, Dublin Corporation, £20,000; St. Thomas's Church, Gloucester street, £6,000; Inland Revenue, Sackville street, £15,000; transformer station, Fleet street, £13,500; transformer station, Ringsend road, £10,500; addition to Catholic University School, Leeson street, £9,000.

EXTENSION OF MESSRS. PLAYERS' DUBLIN FACTORY
The Irish Times (1921-Current File); Dec 11, 1930;
ProQuest Historical Newspapers: The Irish Times and The Weekly Irish Times
pg. 3

EXTENSION OF MESSRS. PLAYERS' DUBLIN FACTORY.



Messrs John Player and Sons, branch of the Imperial Tobacco Company (of Great Britain and Ireland), Limited, are adding a new block to their factory at Botanic road, Glasnevin.

The building is of steel frame construction

with external walls of brick lined on the inside with white enamelled brick.

The floors are of reinforced concrete finished with 1 1/4" maple flooring.

The entrances will have steel revolving shutters.

The architects are Messrs. Ashworth Smith, William street, Dublin.

The contractors are Messrs. G. and T. Crampton, Ltd., Hammersmith Works, Ballsbridge, Dublin.

TOBACCO.

WHEN the First Census of Production for the United Kingdom was taken in 1907 no separate figures were published for the tobacco industry in Ireland, because such publication would lead to the "disclosure of particulars relating to certain firms." This was a clear indication that the industry in Ireland occupied but a small part of the total, and that it might have been said to have been concentrated in a small area, and in the control of a few firms.

When the Irish Free State came into being an import duty of 25 per cent. on manufactured tobacco and cigarettes was part of the administrative machinery taken over from the British Government, and the effect of that was an immediate growth of the manufacture of all kinds of tobacco, cigarettes and snuff within the territory of the Free State, and more particularly in the city of Dublin. The brands of tobacco and cigarettes manufactured by the various firms associated with the Imperial Tobacco Company had always been popular in Ireland, but the addition of 25 per cent. to the retail price was a definite handicap to retention of the trade. The tariff duty had not been imposed by the Free State Government, it was a part of the Safeguarding Duties imposed by the British Government for the United Kingdom at the end of the Great War.

THE IMPERIAL TOBACCO COMPANY.

Within two years of the foundation of the Irish Free State all the popular brands manufactured under the control of the Imperial Tobacco Company were being made in factories in Dublin, of which three were opened within the period. The firm of John Player and Sons opened a capacious factory in the Glasnevin district; Messrs. Wills opened another in Marrowbone lane; and Messrs. Clarke in Dolphin's Barn. The Belfast firms of Murray and Gallaher opened factories in Dublin at a somewhat later date, but one old-established factory was compelled to close down.

The firm of John Player and Sons has been favourably known in Ireland for many years, and, following the opening of their factory in Dublin in 1924, their tobaccos and cigarettes have enjoyed an increasingly wide popularity. "Medium" Navy Cut Cigarettes and Tobacco are, perhaps, the best known manufactures of the firm, but among other popular brands may be mentioned "No. 3 Virginia" Cigarettes, and "Bachelor," a cork-tipped cigarette, which is a recent introduction, and is a special favourite with the ladies. "Weights" and "Drumhead" are less expensive cigarettes, with a wide appeal.

CARROLL'S.

An Irish firm that has made great advances since the Free State came into being is that of Messrs. Carroll and Co., of Dundalk. Probably in no part of the Free State is the popular "Sweet Alton" cigarette or the equally popular "Mick McQuaid" plug without its hundreds of devoted adherents. From the spacious modern factory at Dundalk this old Irish firm hands its products in huge quantities every day to all parts of the Free State, and so immediate has been the response from the public that the factory has had to be enlarged to meet the ever-increasing demands for the firm's products. Albeit alone among the older established firms of the Free State, Messrs. Carroll have more than held their own under the new conditions. They have consistently and persistently used every device of modern publicity, and the result is to be seen in the prosperous condition of their factory, and the happiness which has been brought to an army of contented workers in Dundalk.

The immediate effect of this expansion of the industry was that the number of persons employed increased rapidly from an estimated 500 at the date of the foundation of the Irish Free State to 2,105 in 1926. At the taking of the Census of Production in 1929 the number of persons employed had decreased slightly to 2,049, but the effect of the tariff would seem to have been a permanent increase of over 1,500 persons at work in the preparation and manufacture of tobacco and cigarettes.

The following table shows the position of the industry in 1926 and 1929:—

Kind of Tobacco	Net Selling Value.	
	1926	1929
Manufactured	£	£
Cigarettes	2,512,393	2,943,695
Cigars	5,788	4,562
Pipe Tobaccos ...	2,371,524	2,137,911
Snuff	142,759	128,821
Other Products ...	902	757

The "gross output" of tobacco factories in the Free State amounted to £3,833,366 in 1926, and to £5,215,746 in 1929. The cost of the material used was £3,904,239 in 1926,

and £3,937,455 in 1929; and the "net output," £1,129,127, in 1926 increased to £1,278,291 in 1929.

An interesting aspect of the industry is that, while there was a small decrease in the numbers employed in 1929 as compared with 1926, there was an increase of about £150,000 in "net output," and an increase from £286,789 to £314,775 in the amounts of salaries and wages paid. Each person employed was producing slightly more, and receiving a higher salary or wage in consequence.

The quantities of tobacco and cigarettes imported at the Census of Production periods were as follows:—

	1926		1929	
	lbs.		lbs.	
Cigarettes	43,416	40,691		
Cigars	10,898	10,898		
Pipe Tobacco	19,326	17,151		

IMPRESSIONS OF RECENT FACTORY DEVELOPMENT IN IRELAND

BY GEORGE F. BECKETT, F.R.I.A.I.

It will be evident that it is impossible in a short article like this to give an adequate synopsis of factory construction in the whole of Ireland, and that the examples here given can only deal with a small proportion of the work which has recently been carried out.

The political changes in Eire and the present Government's policy of industrial expansion have resulted in the erection of a number of factories of substantial size, and many extensions to existing factories.

In this Supplement, which is connected with the centenary of the Royal Institute of the Architects of Ireland (an important event in the architectural life of this country as a whole), the subject will be looked at from an architect's point of view, being more concerned with planning, accommodation, lighting, material, amenities and appearance than with technical details in regard to the manufactures which are carried on.

The last ten years or so have seen a great development in the principles underlying factory planning. One has recollections of dark, drab and ill-lighted conditions under which factory workers of a generation ago had to exist when the machine was everything and the "hands" of little importance.

Now we see a better conception of the relation of the worker to the work produced: we

on in the department above his office—a clear indication of happy conditions.

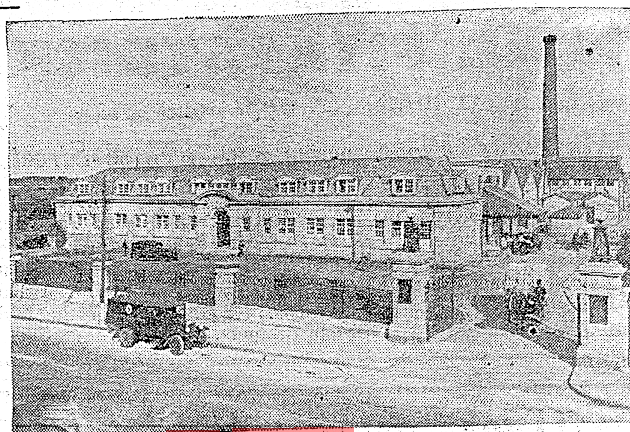
The provision of adequate facilities for recreation has now become a matter of course in the development of factories or any considerable size. Well laid-out pleasure grounds are becoming fairly common, and factory managers are realising the importance of these amenities, and of keeping them in good order.

TOBACCO FACTORY

William Clarke and Son, who for fifteen years have been manufacturing pipe tobaccos and snuffs at South Circular road, Dublin, were established as long ago as 1830 in Cork.

Up to 1929 the Dublin factory was used entirely by Messrs. Clarke, but at that time the Imperial Tobacco Company decided to provide a new home in it for another of their branches—Messrs. W. D. and H. O. Wills—and this entailed considerable extensions being carried out. Although unmistakably a factory in its design, the building in its appearance fits in admirably with the residential character of the neighbourhood, and the grey coloured bricks, with Chester fire-brick quoins, harmonize splendidly with the artificial stone dressing.

The general lay-out of the building was determined by the engineering staff of the



Messrs. Player's tobacco factory, Botanic road, Dublin.

some municipal building rather than of a manufacturing concern. The effect, however, is very pleasant, and the granite walls contrast well with the grey-green slated roof.

Here the area of the site is somewhat smaller than that previously described, but there has been the same opportunity of retaining an open space behind, which, with the setting back of the front, adds greatly to the pleasing effect, and helps to make the factory an acquisition to the neighbourhood.

The influence of the local architect, the late Mr. Charles Ashworth, is evident in the design of the building, which he carried out in collaboration with Mr. J. R. Poyser, of Nottingham.

The interior is one of ample spaces, and the effect of brightness and cleanliness is greatly helped by the fact that all the walls are lined with white glazed bricks, an initial cost which will surely prove economical in the long run.

The traditional north aspect system of roof lighting has not been followed in this case, but in our variable and often sunless climate there is something to be said in favour of the admission of sunshine, and there must be many days on which the several hundreds of employees are grateful for this deviation from the usual arrangement.

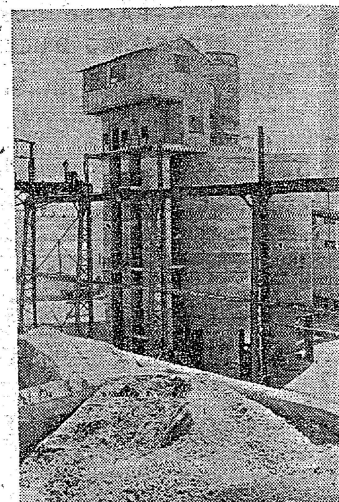
PRINTING WORKS

A completely modern factory on a splendid site has come into being through what, from other aspects, was a disastrous fire in the printing works of Messrs. Browne and Nolan, previously in one of the congested areas of Dublin City. The architect, Professor R. M. Butler, M.Arch., was fortunate in having a very free hand, and in having the advantage of the inspection of a number of modern factories in England and Scotland before he prepared his plans.

The building is very simple, with the new

vertical north light system, without much architectural pretension. (The offices connected with the factory have not yet been built).

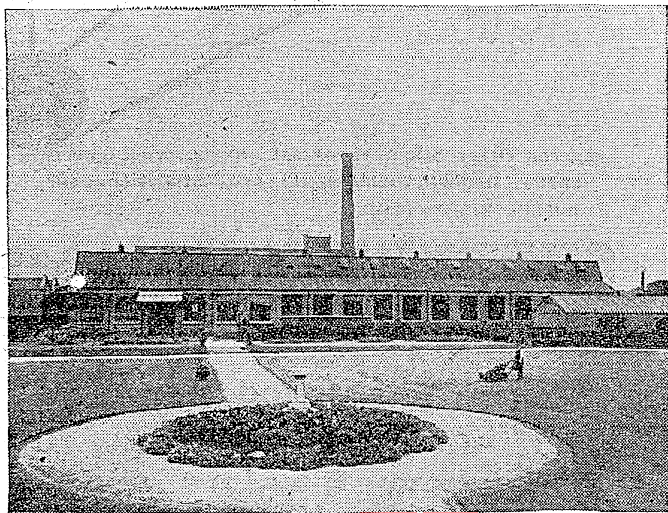
It is a single storey of over 100,000 feet of floor space, and in its arrangement is most efficient and up-to-date. The lighting and ventilation, as is so very essential in a



Portion of the Cement Factory at Drogheda.

ing factory, is of the most ample description, and it is notable that the stanchions supporting the roof are very widely spaced. Great care has been taken in regard to all aspects of the lay-out so as to increase facility in working.

A notable structural point is that the



Rear view of Messrs. Wills's tobacco factory, Dublin.

see a care for the welfare of the operative that comes from a genuine desire to bring into the life of the workers, through their surroundings, more cheerful conditions. One sees this not only in the actual formation of the buildings themselves, but in the relationship evidently existing between the staff in charge and the hand-workers themselves.

Imperial Tobacco Company in collaboration with the local architects, Messrs. Beckett and Harrington, who, in addition to supervising the work generally, were responsible for the design of the front and various other details.

A HANDSOME BUILDING

The front of John Player and Sons' tobacco factory resembles more closely that of a hand-

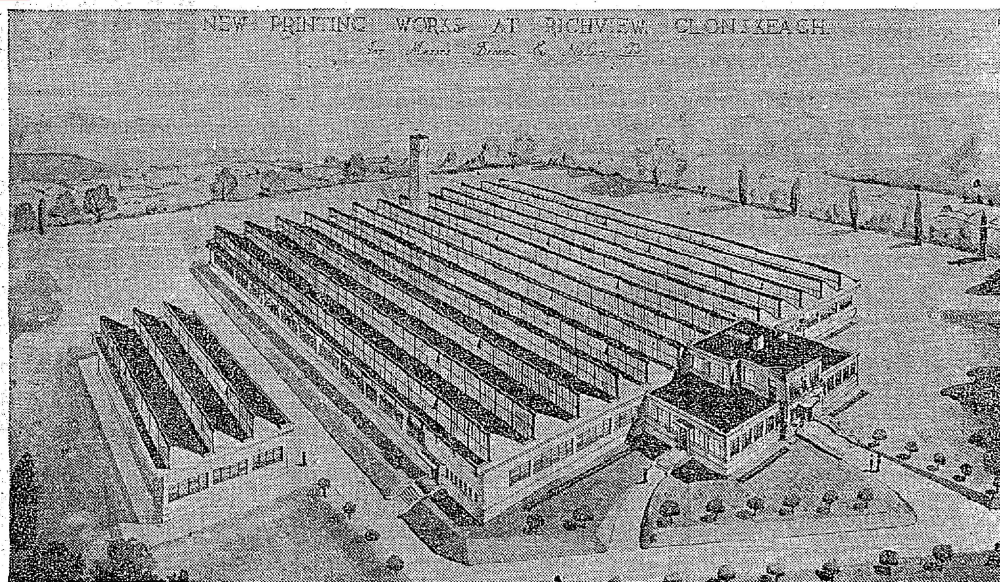
HAPPY CONDITIONS

One has noticed that even in a short space of time there has come about an improvement in regard to monotony in the task, a freedom from boredom to an extent which certainly did not exist in past years. No longer are factories regarded by enlightened owners as boxes into which can be housed as large a number of machines and operatives as possible, all combining, as it were, in one unit of production and distribution; but there is evidence that, in recent years, at least as much thought is given to the fact that the building is the day-time home of a large number of human beings.

The thought which is given to the external appearance of the building is not alone for the sake of the credit of the firm concerned and as an advertisement for their products, but also to create an atmosphere of well-being and dignity in the lives of the workers.

It has been interesting to the writer to observe in various factories, especially where the workers are girls, a naturalness and absence of fear of overseers or others in authority, and an apparent interest in the work which is being carried on. The moving of the workers from one machine to another at fairly close intervals, where this is possible, seems to help greatly in this direction.

An engineer in one factory told me that he frequently hears spontaneous singing going



Messrs. Browne and Nolan's printing works at Clonsilla.

Player and Wills

planning for the future

Player and Wills (Ireland) Limited, which was formed to co-ordinate the operations of John Player and Sons, Botanic road, Dublin, and W. D. and H. O. Wills and William Clarke and Son, South Circular road, Dublin, has decided to centralise its offices and manufacturing operations at its larger premises, which are at South Circular road. As building extensions and structural alterations will be necessary, it is not envisaged that complete centralisation will be effected before 1968, after which all the brands of both branches will be manufactured in one factory. The use to which the Botanic road premises may be put is being examined.

A statement from the company says that the decision to bring about complete centralisation is the latest step in the policy of the board to strengthen the company's position in order to meet the challenge of the changed trading conditions in which it, and the country as a whole, will have to operate in the future.

Players and Wills £ $\frac{3}{4}$ m. extension

THE £ $\frac{3}{4}$ MILLION extension of the Players & Wills (Ireland) Ltd. factory and plant is expected to be completed by the late Spring of 1968, and will be capable of manufacturing 80 million cigarettes a week. The current national consumption is around 100 million a week.

Coinciding with completion of the South Circular Road premises, will be the closing of the Player's Glasnevin factory. Wills and Players were integrated in November, 1964 and it was decided to be more economic to operate at the one site, formerly the Wills factory.

The joint concern employs 1,400 and it appears likely that the redundancy level will be low, almost definitely below 50.

Players & Wills (Ireland) Ltd. is a subsidiary of the mammoth Imperial Tobacco, and is the largest Irish cigarette manufacturer. It is estimated that its share of the Irish market is 50%, followed by the improving Carroll's 45% and Gallaher's 5%.

Its annual sales amount to approximately £40 million of which £27 million is paid in tax. On a 4/8 packet of cigarettes 3/3 $\frac{1}{4}$ is paid in tax, without turnover tax.

Although a direct investment cannot be made in the company, Imps has 11,000 Irish shareholders, which receive dividends in excess of those paid by Carrolls. It is hoped that the Irish subsidiary will eventually have a quotation on the Dublin Stock Exchange, improving its Irish image.

The new extensions, which also include the expansion of the Cork depot, are aimed at increasing efficiency, for it is felt that the Irish consumption of cigarettes has reached a static level. But the large capacity allows for any upswing in the Irish smoking habits or increase in P.W.'s share of the market.

APPENDIX 14.4

BUILT HERITAGE: KEY PLANS

VOLUME III

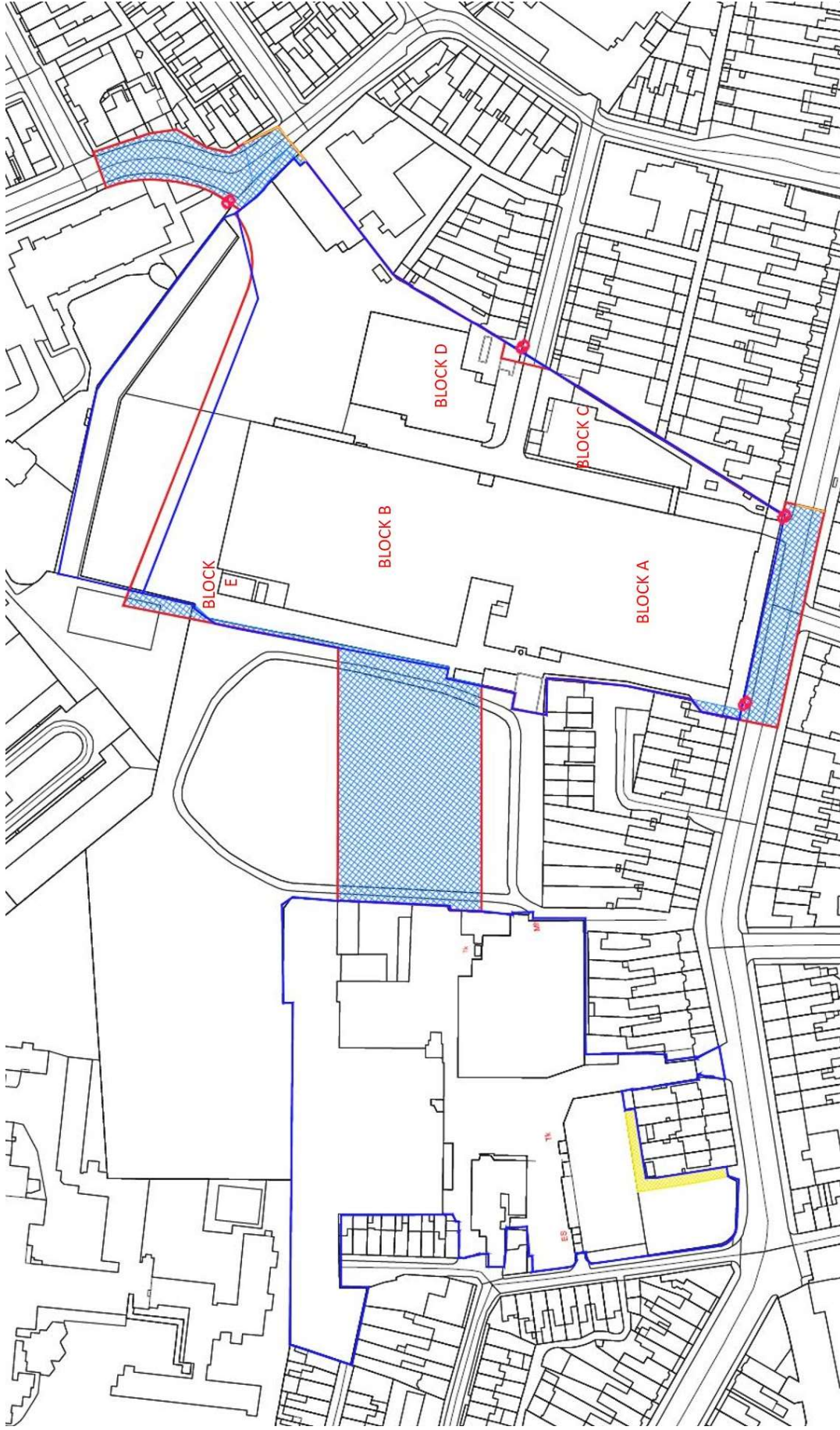
APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

Player Wills Factory, South Circular Road, Dublin 8.

Key Plans



1. Key Plan – Site Layout



2. Key Plan – Block A – Ground Floor Level



3. Key Plan – Block A – Ground Floor Level



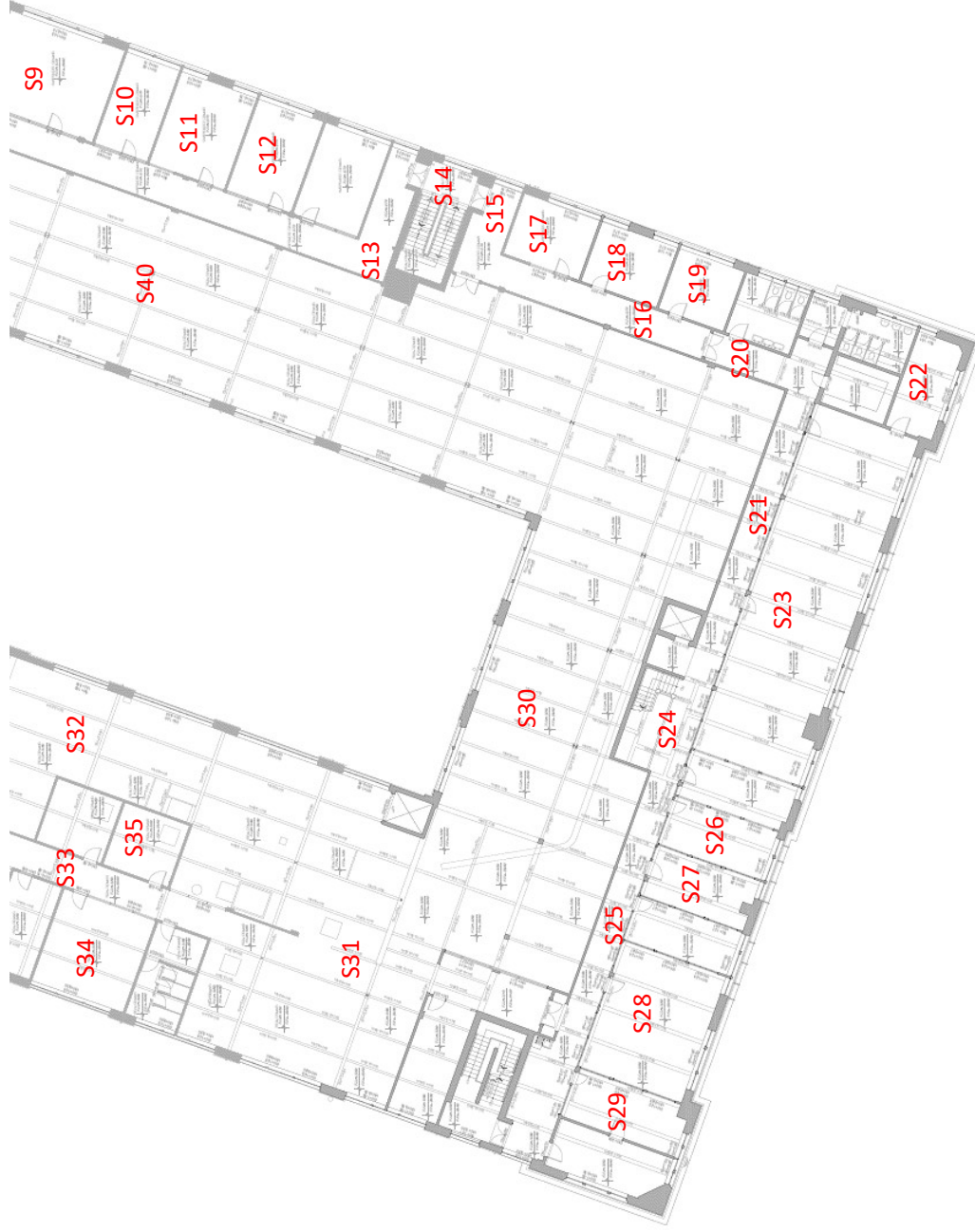
4. Key Plan – Block A – First Floor Level



5. Key Plan – Block A – First Floor Level



6. Key Plan – Block A – Second Floor Level



7. Key Plan – Block A – Second Floor Level



8. Key Plan – Block A – Third Floor Level



9. Key Plan – Block A – Third Floor Level

APPENDIX 14.5

BUILT HERITAGE: PHOTOGRAPHIC

RECORD - EXTERNAL

VOLUME III
APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

Player Wills Factory, South Circular Road, Dublin 8.

Photographic Record - External



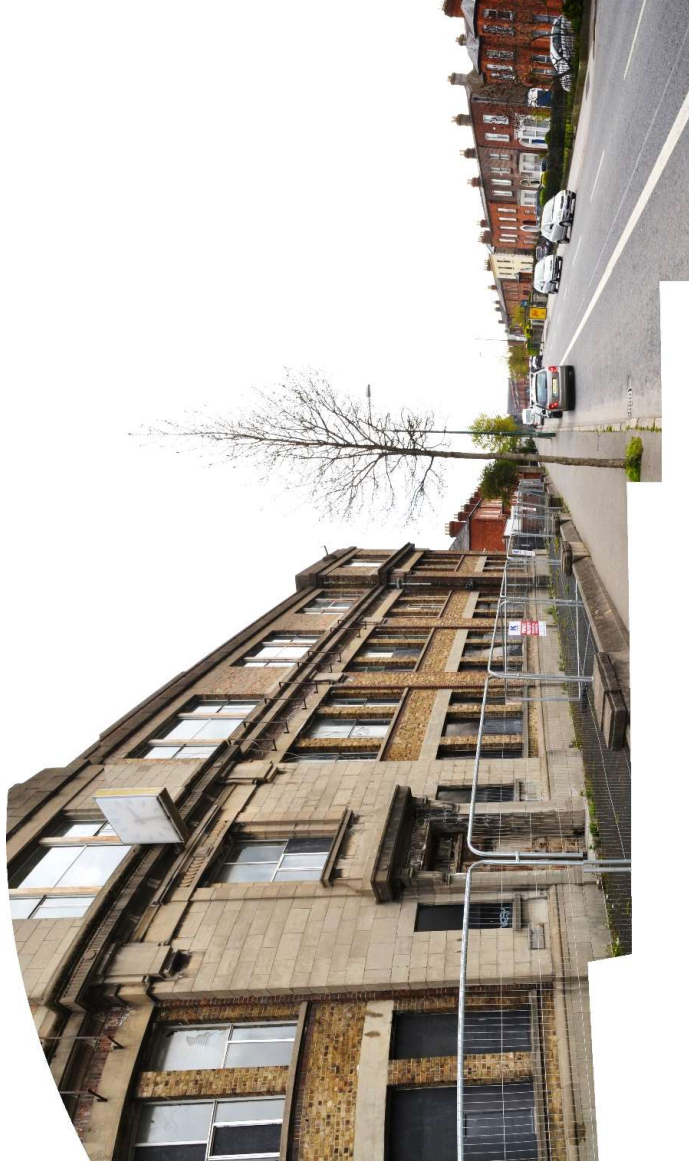
1. Panoramic view of the southern façade of Block A, facing onto South Circular Road



2. Oblique view along the western façade of Block A



3. Oblique view along the western façade of Block A



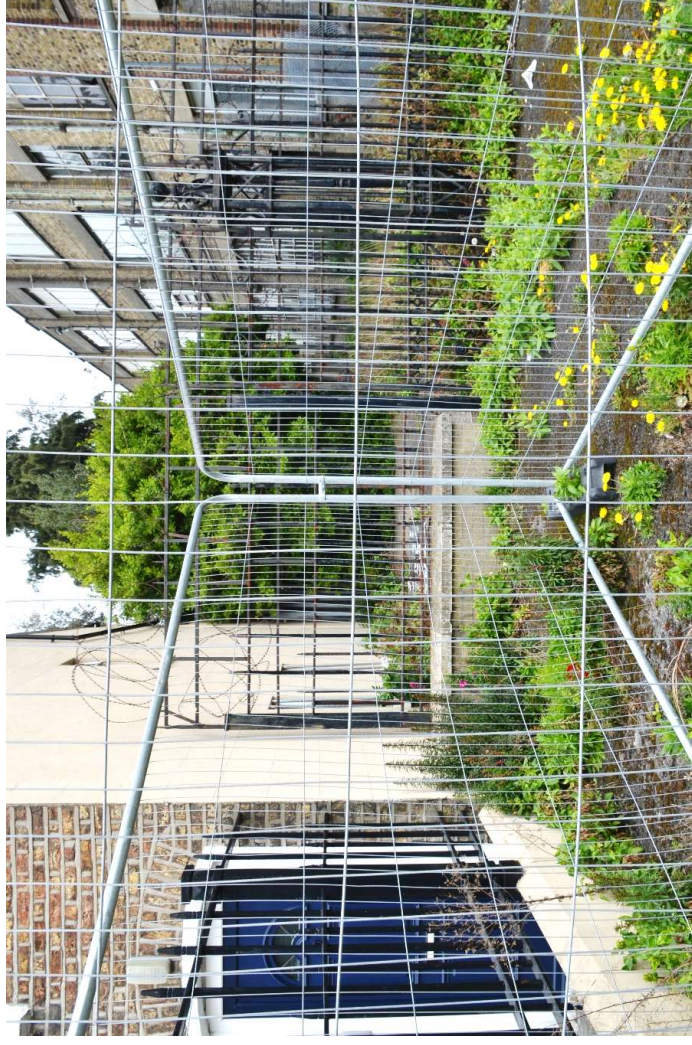
4. Oblique view along the southern façade of Block A, looking East



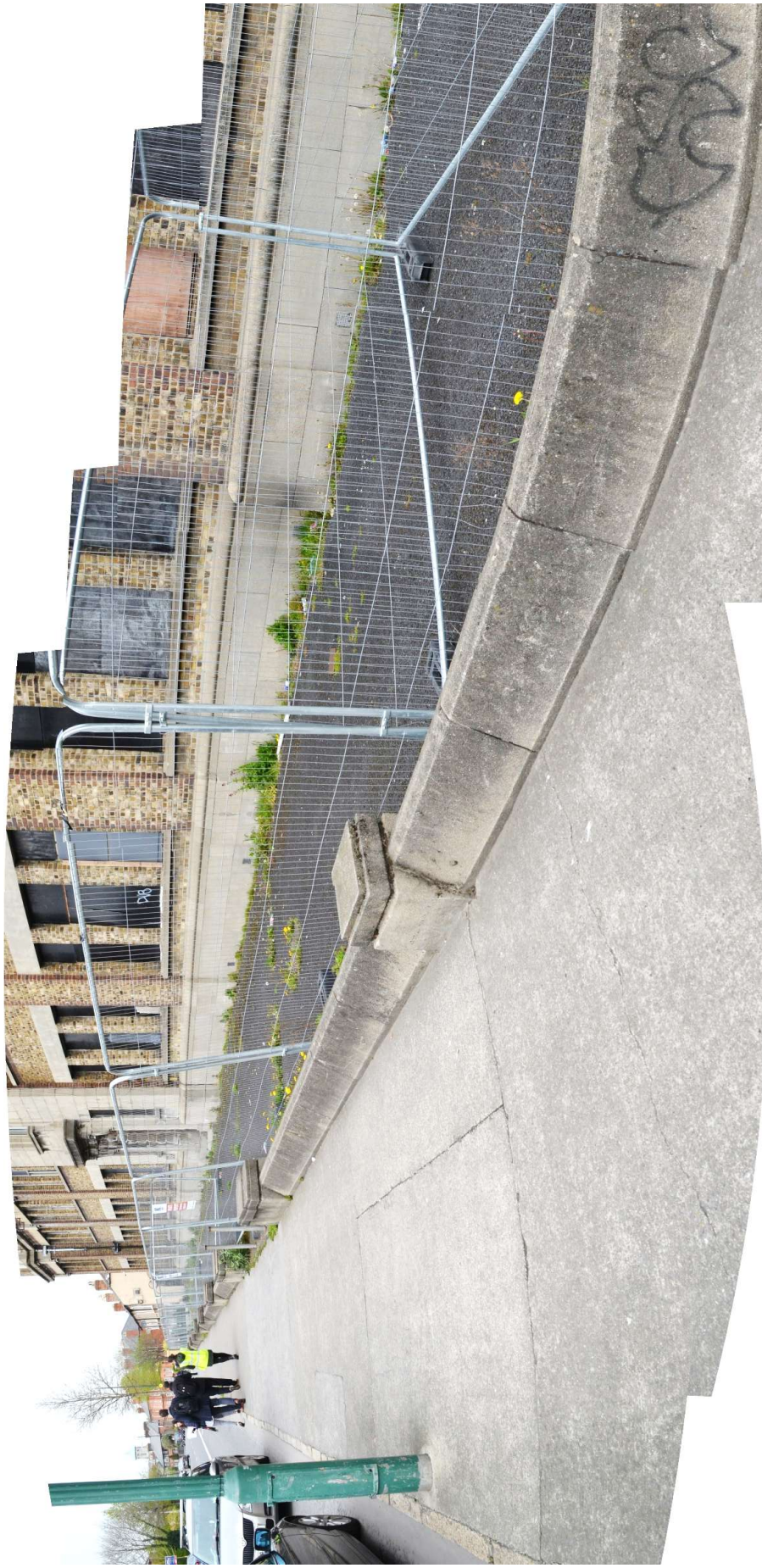
5. View of the western bay of the front façade of Block A



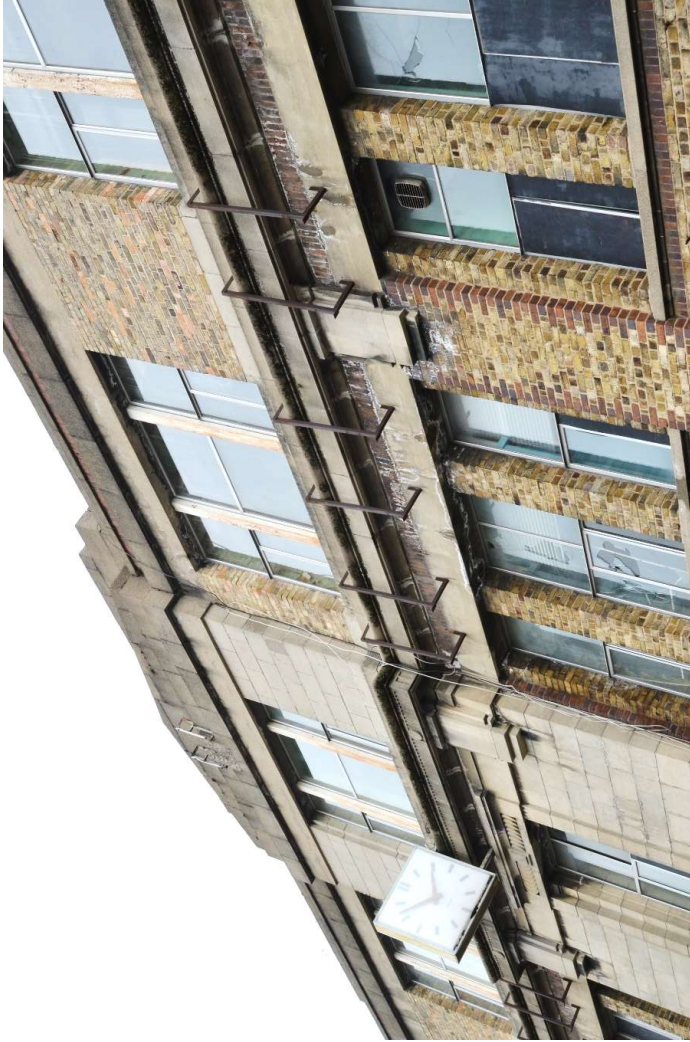
6. View of the boundary treatment to the South Circular Road



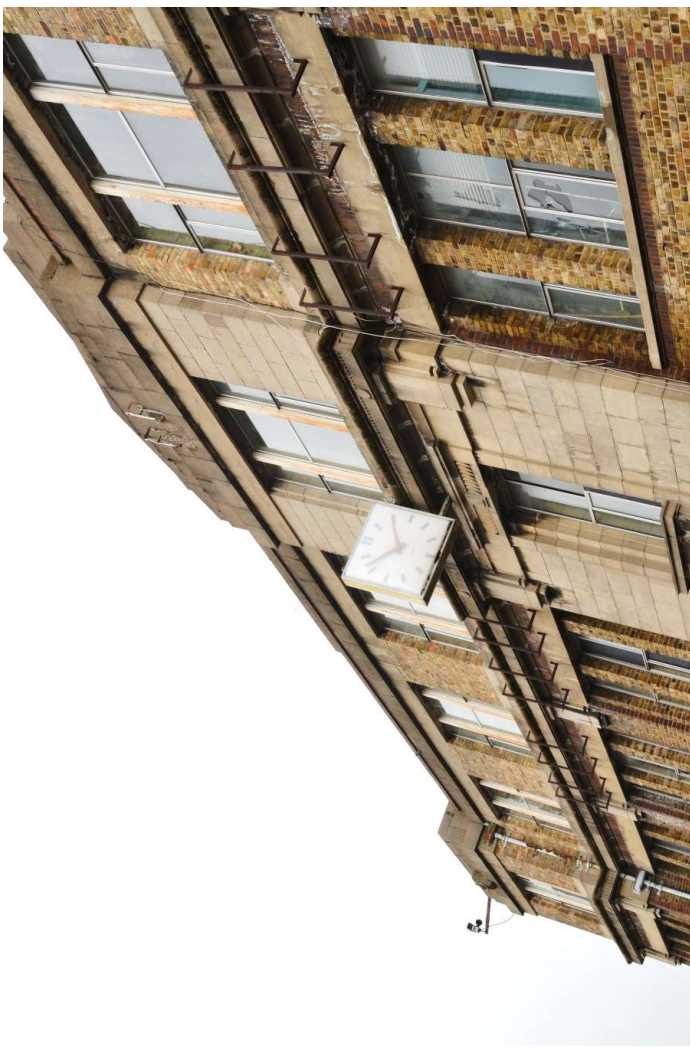
7. View of the entrance gate to the western side of Block A



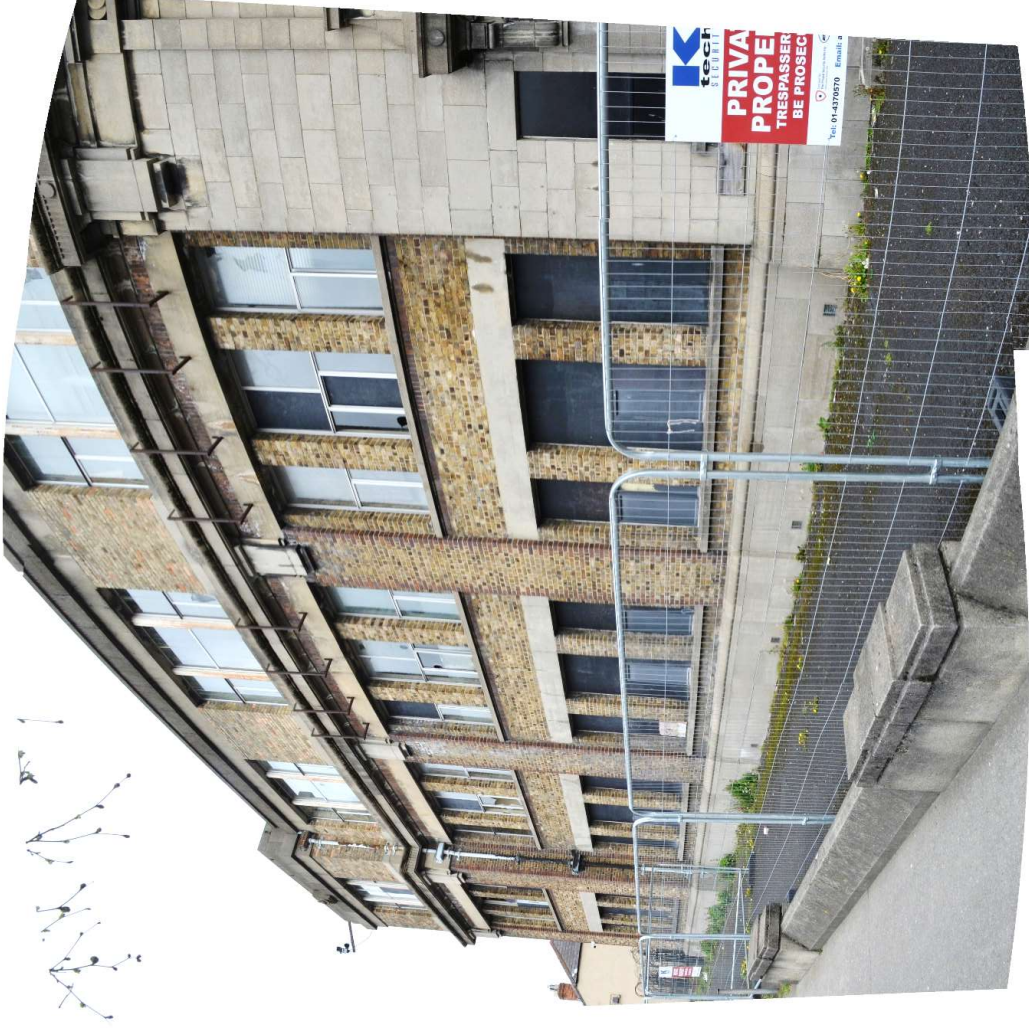
8. Panoramic view of the boundary treatment along South Circular Road.



9. View of the clock on the front façade of Block A



10. Oblique view of the upper level of Block A



11. Oblique view along the front façade of Block A



12. View of the rainwater goods on the front façade of Block A



13. View of the central breakfront entrance bay to the southern façade of Block A



14. View of the door surrounds and over-light to the main entrance of Block A



15. Oblique view along the front façade of Block A to the South Circular Road



16. Oblique view along the front (southern) and eastern elevations of Block A



17. View of the south-eastern corner bay of Block A



18. View of the gate pier to the east of Block A along the South Circular Road



19. View of the entrance gate to the east of Block A



20. View of the entrance gate to the east of Block A



21. View looking north along the eastern elevation of Block A , towards Block C



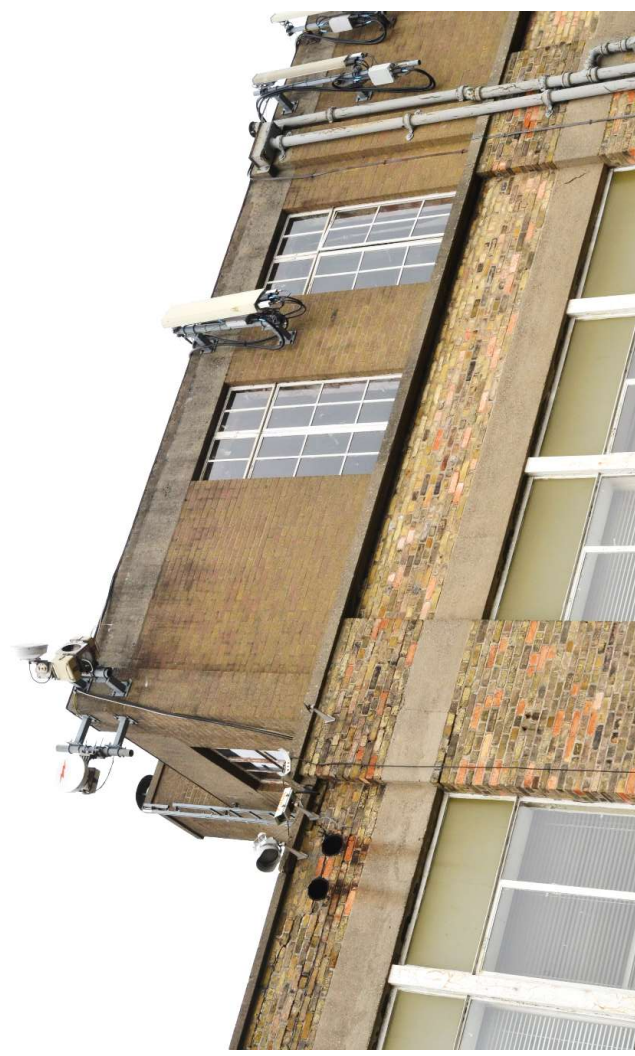
22. View looking south towards the entrance to the east of Block A , off the South Circular Road



23. Panoramic view along the eastern elevation of Block A, with Block C visible to the right hand side



24. View of the junction between the original two-storey building and the 1930s second floor extension (Block A)



25. View of the later third floor addition to Block A



26. Eastern façade of Block A



27. Original multi-pane window at the later 1930s level of Block A



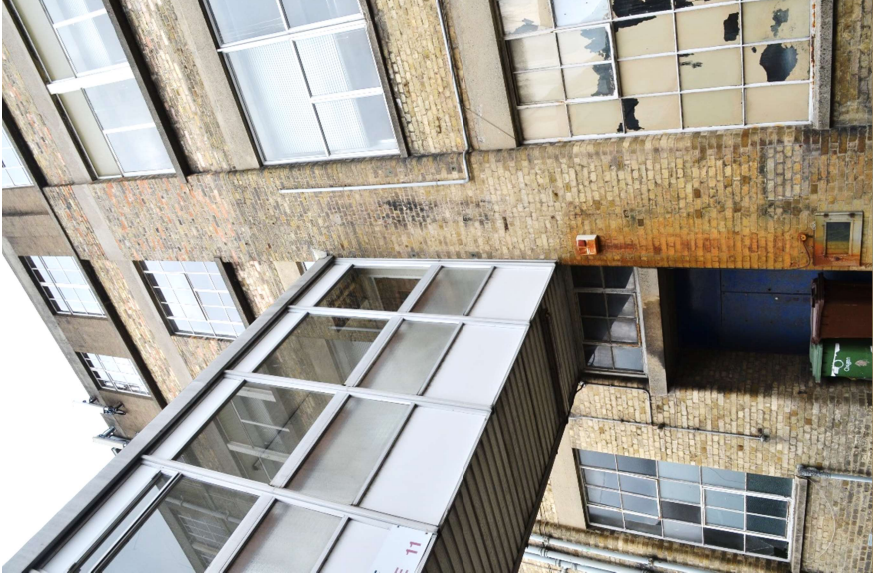
28. Downpipe on the eastern elevation of Block A



29. View into Room G11 of Block A



30. Bridge from Block A to Block C



31. Bridge from Block A to Block C



32. Panoramic view of the eastern elevation of Block A



33. Panoramic oblique view of the eastern elevation of Block A and of Block C. Note that the shopfronts in the foreground are part of a film set in recent years.



34. View towards roof of Block A



35. View over roof of Room G10 (central atrium of Block A)



36. View over roof of central atrium (Room G10) of Block A looking west



37. View over roof of central atrium (Room G10) of Block A looking east



38. Oblique view along the eastern elevation of Block B



39. View along eastern elevation of Block B towards Block A



40. View looking towards Block C



41. Oblique view along eastern elevation of Block B



42. Panoramic view of the western elevation of Block C



43. View of the northern and western elevations of Block C



44. View of the southern elevation of Block D



45. View of the southern and western elevations of Block D



46. Panoramic view looking south-west over the subject site, showing Block D to the left and Block B in the background



47. Panoramic view of the northern boundary of the site



48. Panoramic view of the northern boundary of the site



49. Panoramic view of the north-eastern boundary of the site



50. Panoramic view looking west along the northern elevation of Block B



51. Panoramic view of the northern elevation of Block B



52. Panoramic view looking North-East across the subject site, with Block E and Block B visible in the foreground



53. Panoramic view of the western elevation of Block E



54. Oblique view of the western elevation of Block B



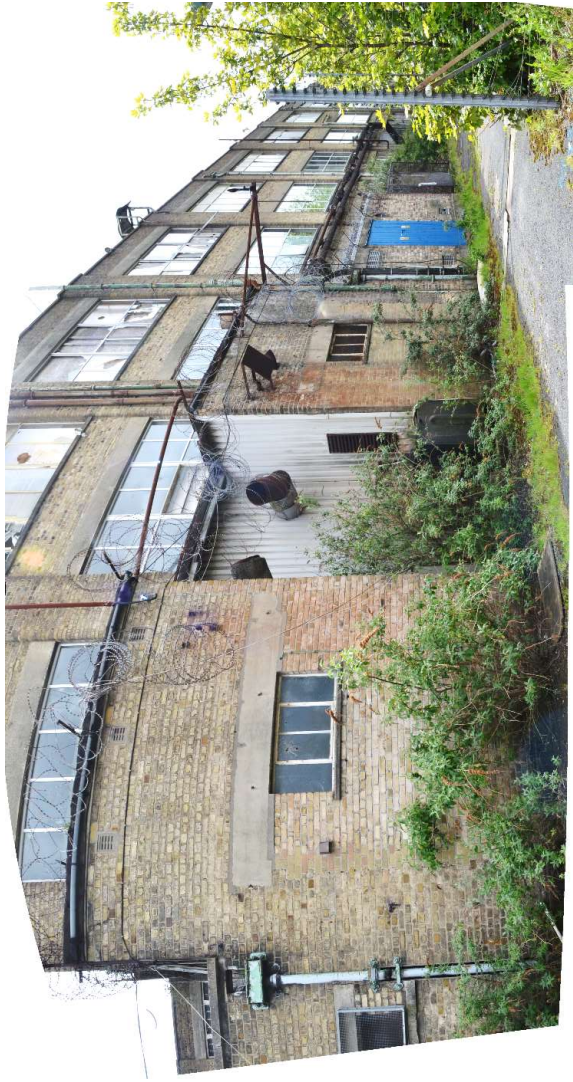
55. Oblique view of the western elevation of Block B



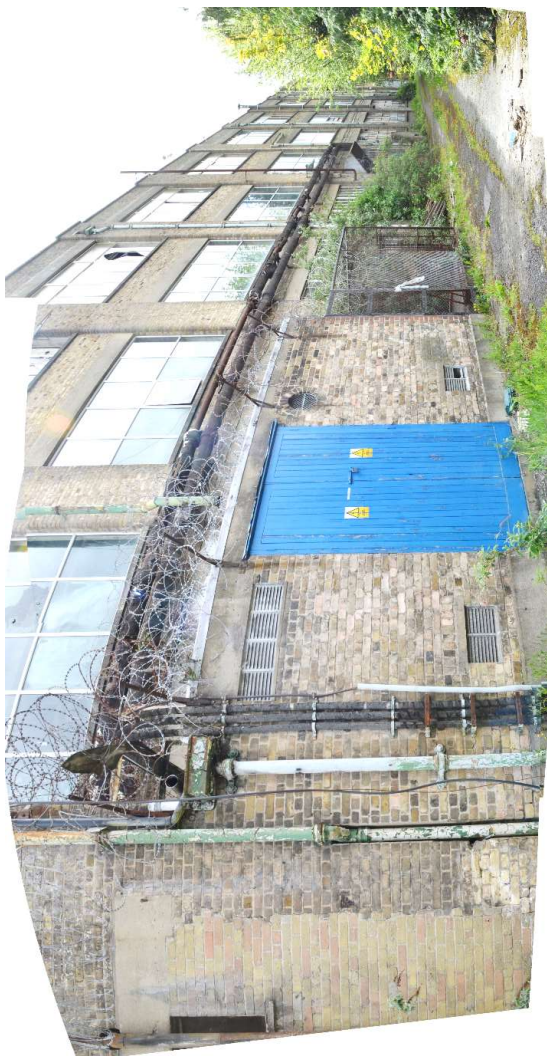
56. Panoramic view of the western and northern elevations of Block A



57. Panoramic view of the small yard between Blocks A and B



58. Oblique view along the western elevation of Block A



59. Oblique view along the western elevation of Block A



60. Oblique view along the western elevation of Block A



61. Oblique view along the western elevation of Block A



62. Oblique view along the western elevation of Block A



63. Panoramic view along the streetscape of South Circular Road, looking East towards Block A



64. Panoramic view along the streetscape of South Circular Road, looking East towards Block A



65. Panoramic view along the streetscape of St. Catherine's Avenue, looking West towards Block A

APPENDIX 14.6

BUILT HERITAGE: PHOTOGRAPHIC

RECORD - INTERNAL

VOLUME III

APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

Player Wills Factory, South Circular Road, Dublin 8.

Photographic Record – Internal

Block A – Ground Floor Level



1. Room G1



2. Room G1



3. Room G2



4. Room G3



5. Room G4





8. Room G4



9. Room G4



10. Room G5



11. Room G6



12. Room G7



13. Room G7



14. Room G8



15. Room G8A



16. Room G8



17. Room G9



18. Room G10



19. Room G10



20. Room G10



21. Room G11



22. Room G11



23. Room G12



24. Room G13



25. Room G14



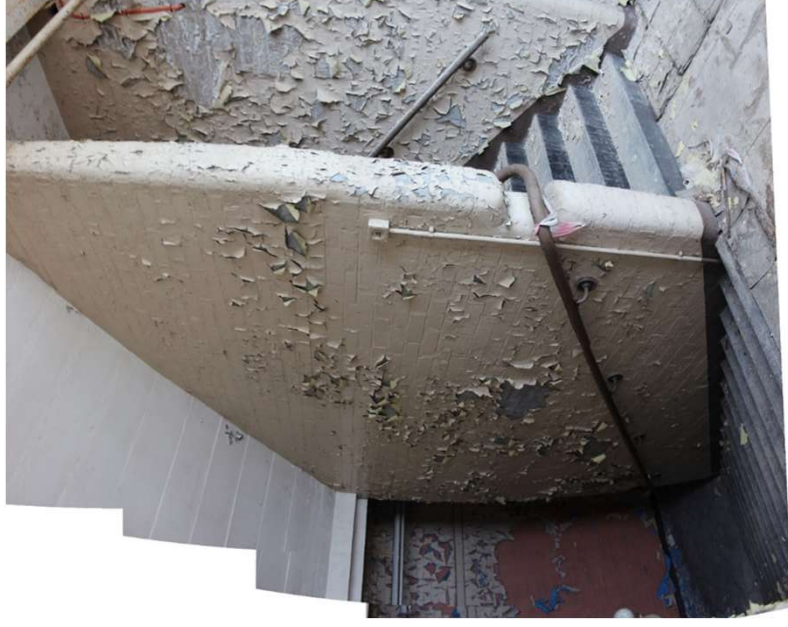
26. Room G15



27. Room G16



28. Room G16



29. Room G16



30. Room G17



31. Room G17



32. Room G18



33. Room G19



34. Room G20



35. Room G21



36. Room G22



37. Room G23



38. Room G24



39. Room G25



41. Room G26



40. Room G26



42. Room G26



43. Room G27



44. Room G28



45. Room G29



46. Room G29A



47. Room G30



48. Room G31



49. Room G32



50. Room G33



51. Room G34



52. Room G35



53. Room G36



54. Room G36



55. Room G37



56. Room G38



57. Room G39



58. Room G40

Player Wills Factory, South Circular Road, Dublin 8.

Photographic Record – Internal

Block A – First Floor Level



1. Room F1



2. Room F2



3. Room F2



4. Room F3



5. Room F4



6. Room F5



7. Room F6



8. Room F7



9. Room F8



10. Room F8



11. Room F9



12. Room F10



13. Room F11



14. Room F12



15. Room F13



16. Room F14



17. Room F15



18. Room F15



19. Room F16



20. Room F16



21. Room F17



22. Room F17



23. Room F17



24. Room F17



25. Room F17



26. Room F17



27. Room F18



28. Room F18



29. Room F19



30. Room F19



31. Room F20



32. Room F20



33. Room F20



34. Room F20



35. Room F20



36. Room F20



37. Room F21



38. Room F21



40. Room F23



39. Room F22



41. Room F23



42. Room F24

Player Wills Factory, South Circular Road, Dublin 8.

Photographic Record – Internal

Block A – Second Floor Level



1. Room S1



2. Room S1



3. Room S1



4. Room S1



5. Room S2



6. Room S3



7. Room S3



8. Room S4



9. Room S4



10. Room S5



11. Room S6



12. Room S7



13. Room S7



14. Room S8



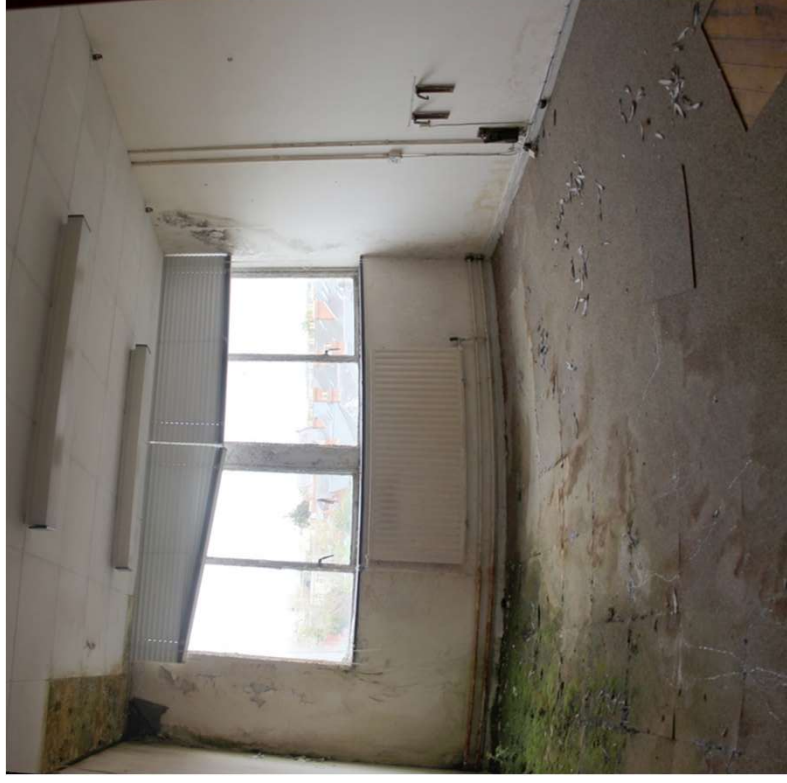
15. Room S9



16. Room S10



17. Room S11



18. Room S12



19. Room S13



20. Room S14



21. Room S15



22. Room S15



23. Room S16



24. Room S17



25. Room S18



26. Room S19



27. Room S20



28. Room S21



29. Room S22



30. Room S23



31. Room S23



32. Room S24



33. Room S24



34. Room S25 and S26



35. Room S27



38. Room S25



37. Room S29



36. Room S28



39. Room S30



40. Room S30



41. Room S31



42. Room S31



43. Room S32



44. Room S33



45. Room S34



46. Room S35



47. Room S36



48. Room S37



49. Room S38



50. Room S39



51. Room S40



52. Room S40

Player Wills Factory, South Circular Road, Dublin 8.

Photographic Record – Internal

Block A – Third Floor Level



1. Room T1



2. Room T2



3. Room T3



4. Room T3



5. Room T4



6. Room T4



7. Room T5



8. Room T6



9. Room T7



10. Room T8



12. Room T8



11. Room T8



13. Room T8



14. Room T9



15. Room T9



17. Room T11



16. Room T10



18. Room T12



19. Room T13



20. Room T14

Player Wills Factory, South Circular Road, Dublin 8.

Photographic Record – Internal

Block A – Roof Level



1. View looking North towards R1



2. View looking West from Room T7.



3. View looking East, showing the external elevation of Rooms T6 and T7



4. View of R2



5. Northern room of R2



6. Southern room of R2



7. View looking North-East over the central atrium



8. View looking South-East over the central atrium



9. View of R3



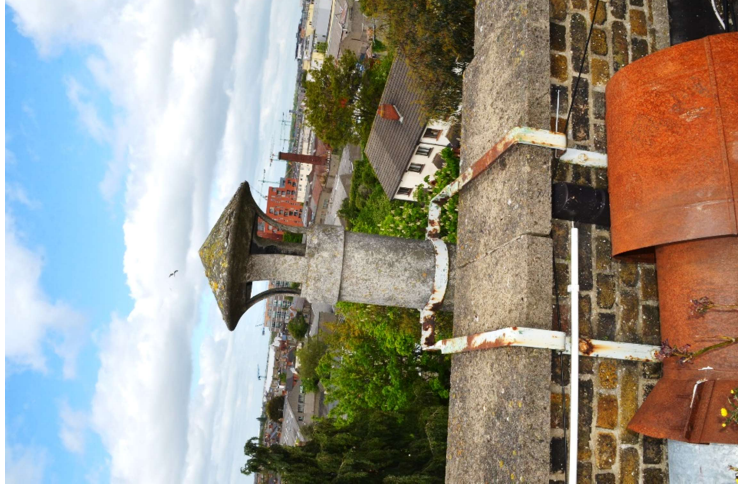
10. View down staircase at R3



11. Window on western wall of R3



12. Metal canopy on the western parapet wall



13. Chimney pot on the western parapet wall



14. Panoramic view looking east from R3



15. Panoramic view looking east, with parapet wall to the front façade visible to the right hand side



16. Panoramic view of the rear of the front parapet wall



17. View of the rear of the front parapet wall



18. View of the rear of the front parapet wall



19. Panoramic view looking north-east over the roofscape



20. Panoramic view looking North at the external elevation of Rooms T13 and T9



21. External view of Room T9



22. External view of Room T8



23. Window to Room T8



24. View of damaged parapet wall beside Room T8



25. View of rooflight over southern section of roof

Player Wills Factory, South Circular Road, Dublin 8.

Photographic Record – Internal

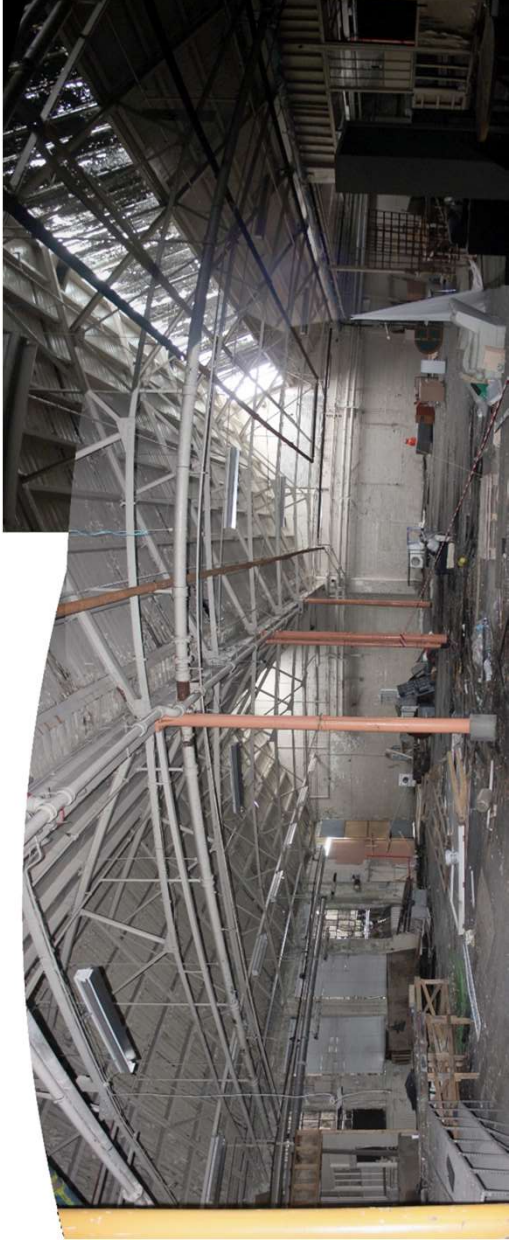
Block B – Ground Floor Level



1. Room G1



2. Room G1



3. Room G1



4. Room G1



5. Room G2



6. Room G2



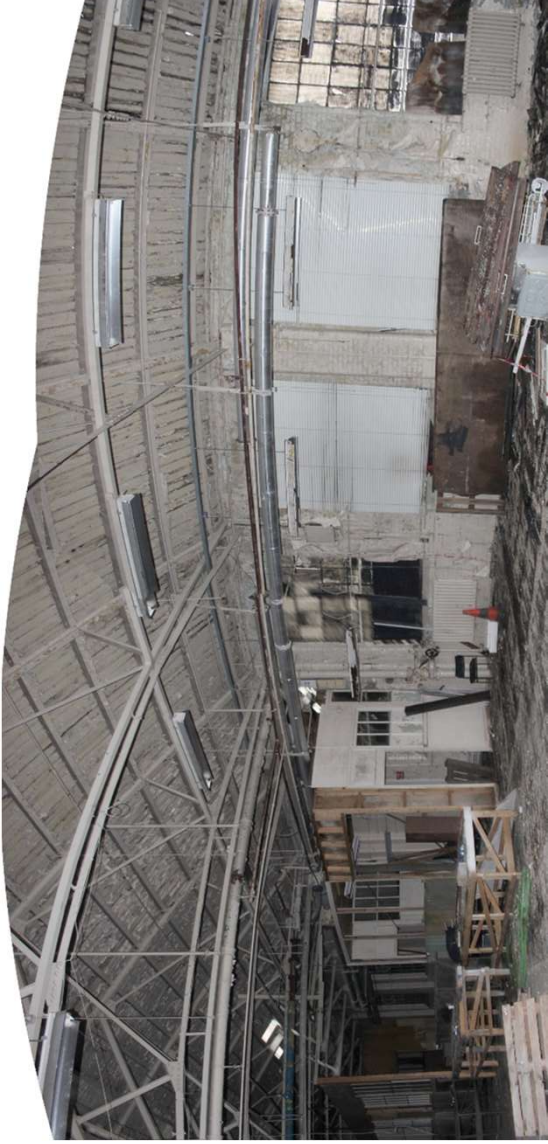
7. Room G2



8. Room G1



9. Room G1



10. Room G2



11. Room G2



12. Room G1



13. Room G1



14. Room G1



15. Room G11



16. Room G1

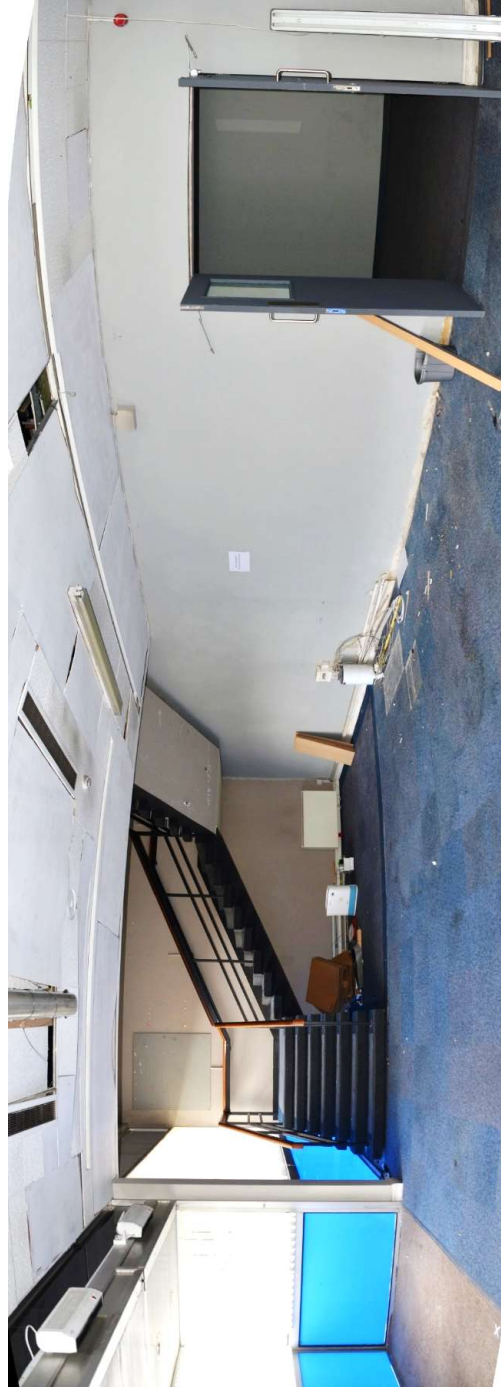
Player Wills Factory, South Circular Road, Dublin 8.

Photographic Record – Internal

Block C



1. Northern elevation of Block C



2. Entrance Hall – Ground Floor Level



3. Office – Ground Floor Level



4. Office – Ground Floor Level



5. Office – Ground Floor Level



6. Office – Ground Floor Level



7. Office – Ground Floor Level



8. Hallway – Ground Floor Level



9. Office – Ground Floor Level



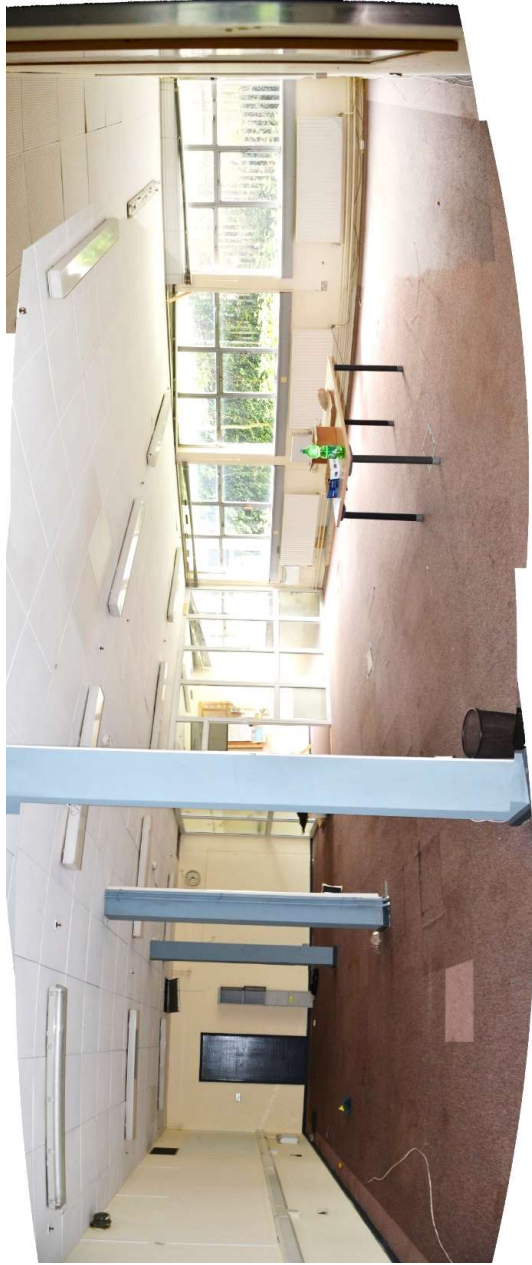
10. Office – Ground Floor Level



11. Office – Ground Floor Level



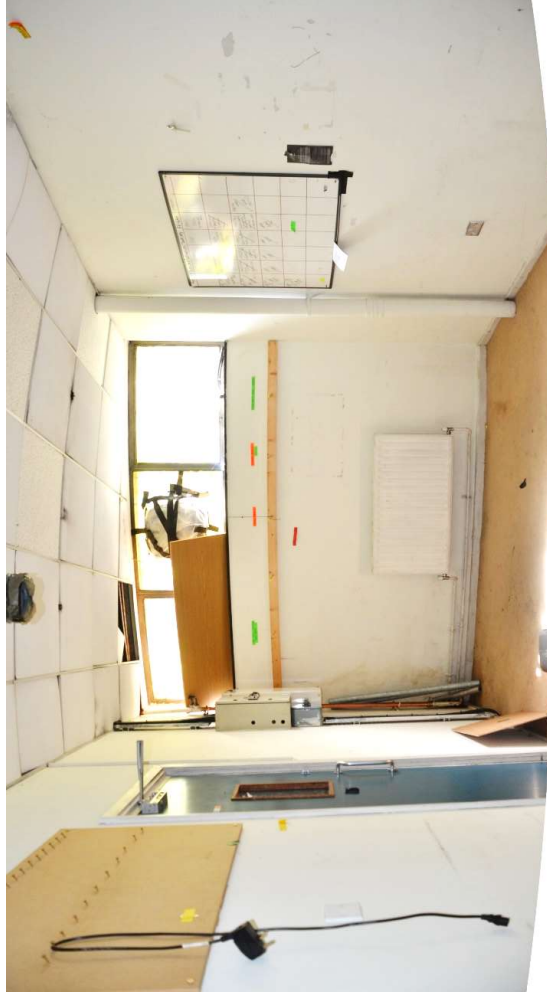
12. Office – Ground Floor Level



13. Office – Ground Floor Level



14. Office – Ground Floor Level



15. Office – Ground Floor Level



16. Office – Ground Floor Level



17. Stair Hall – Ground Floor Level



18. Office – Ground Floor Level



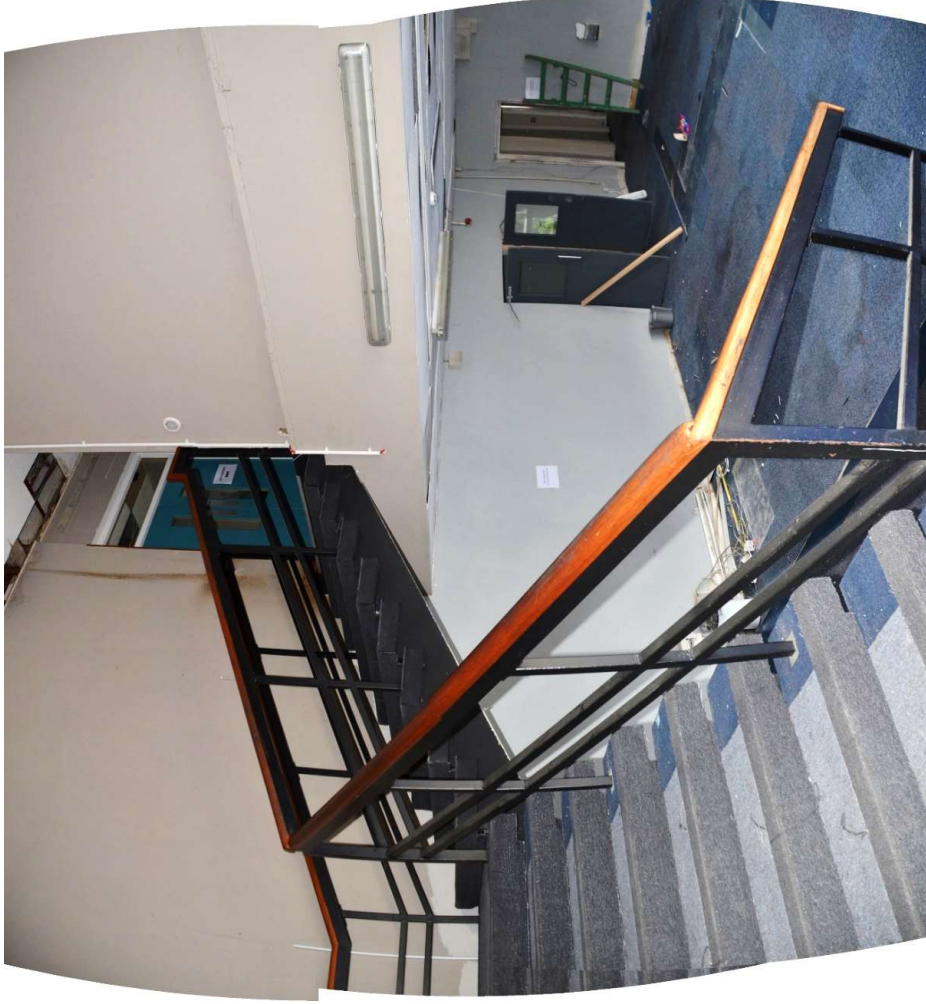
20. Bathroom – Ground Floor Level



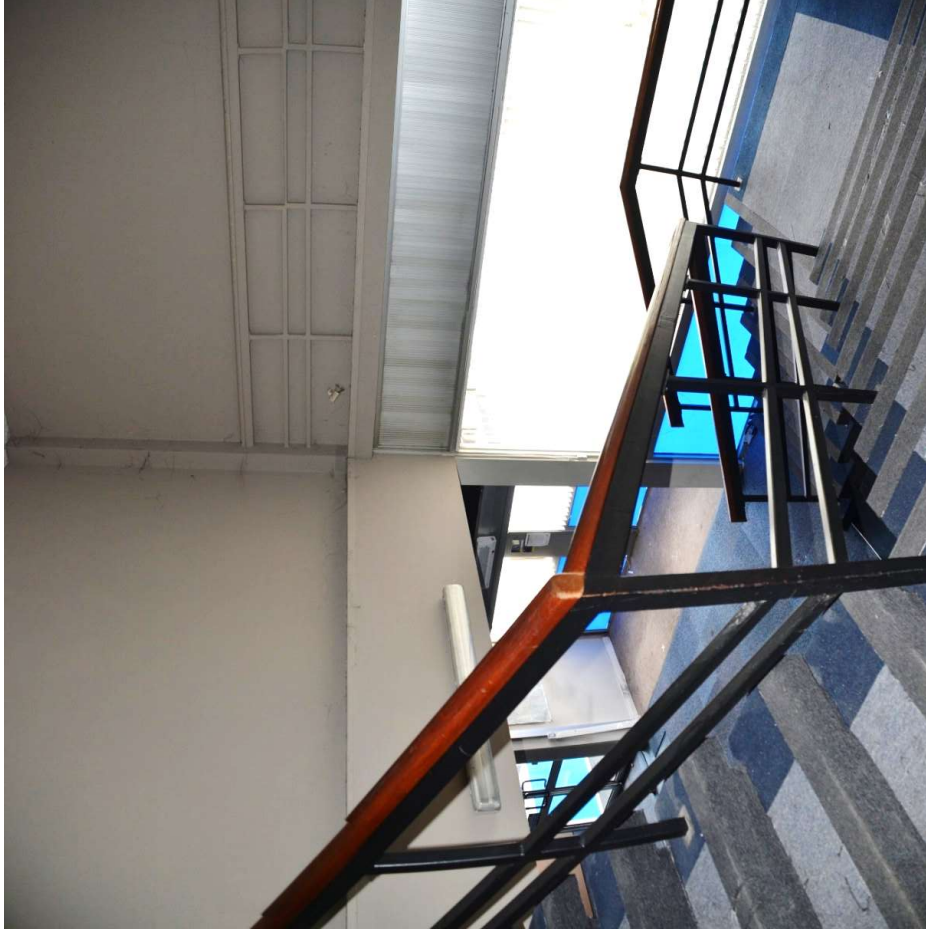
21. Bathroom – Ground Floor Level



19. Hallway – Ground Floor Level



22. Stair Hall – Ground Floor Level



23. Stair Hall – First Floor Level



24. Office – First Floor Level



25. Office – First Floor Level



26. Office – First Floor Level



27. Office – First Floor Level



28. Office – First Floor Level



29. Hallway – First Floor Level



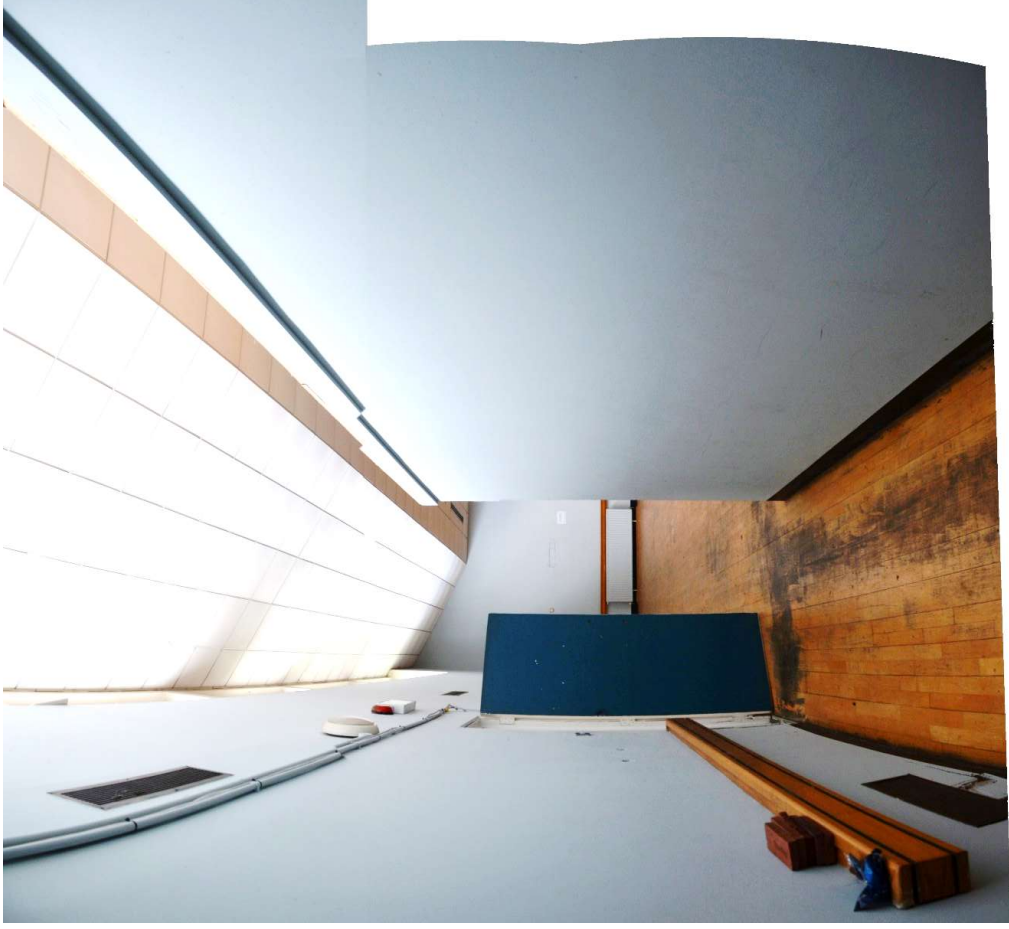
30. Stair Hall – First Floor Level



31. Bathroom – First Floor Level



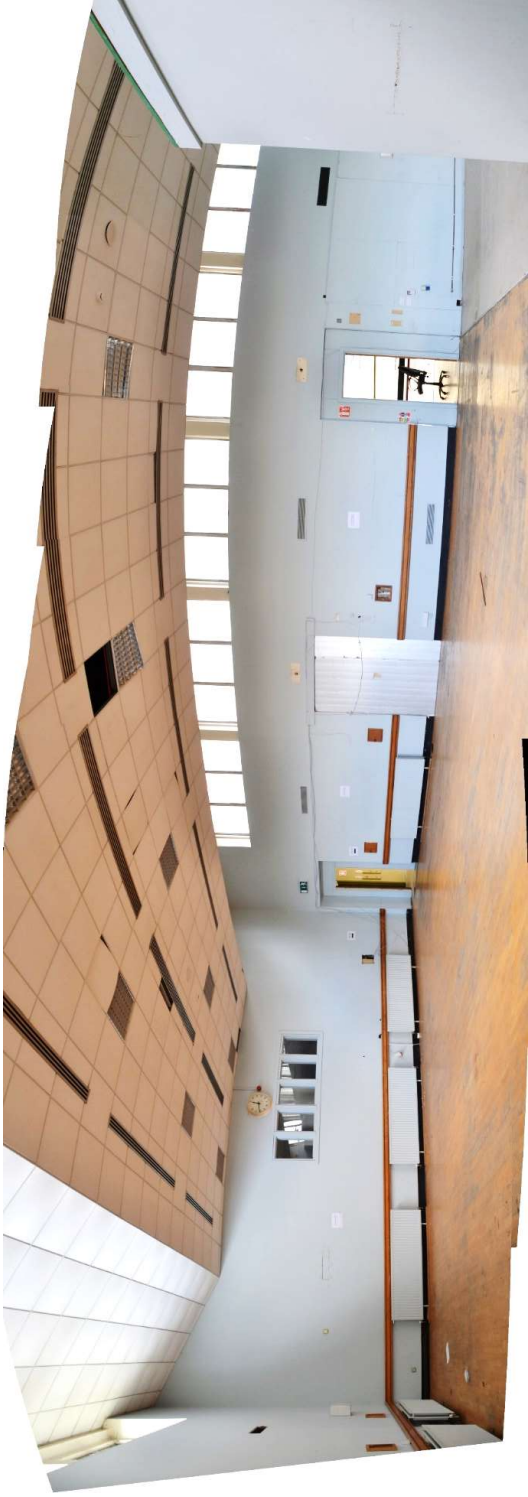
32. Bathroom – First Floor Level



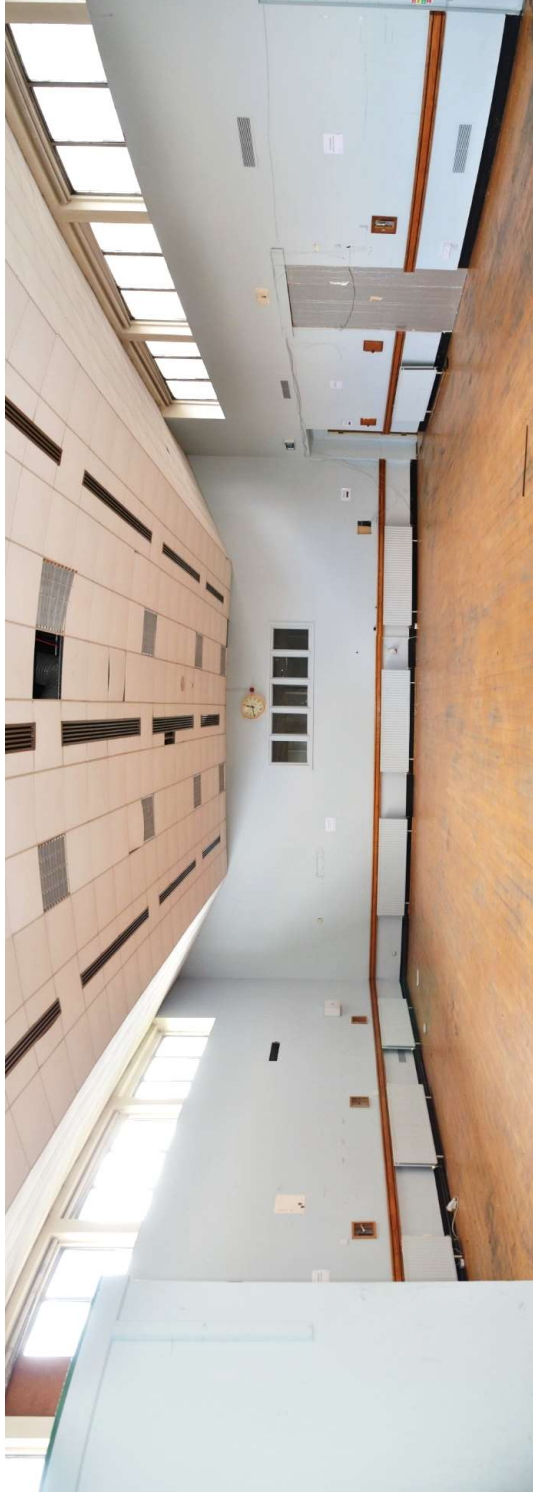
33. Hallway – First Floor Level



34. Kitchen – First Floor Level



35. Hall – First Floor Level



36. Hall – First Floor Level



37. Office – First Floor Level



38. Office – First Floor Level



39. Kitchen – First Floor Level



40. Office – First Floor Level



41. Hallway – First Floor Level



42. Hallway – First Floor Level



43. Office – First Floor Level



44. Stair Hall – First Floor Level



45. Service Room – First Floor Level



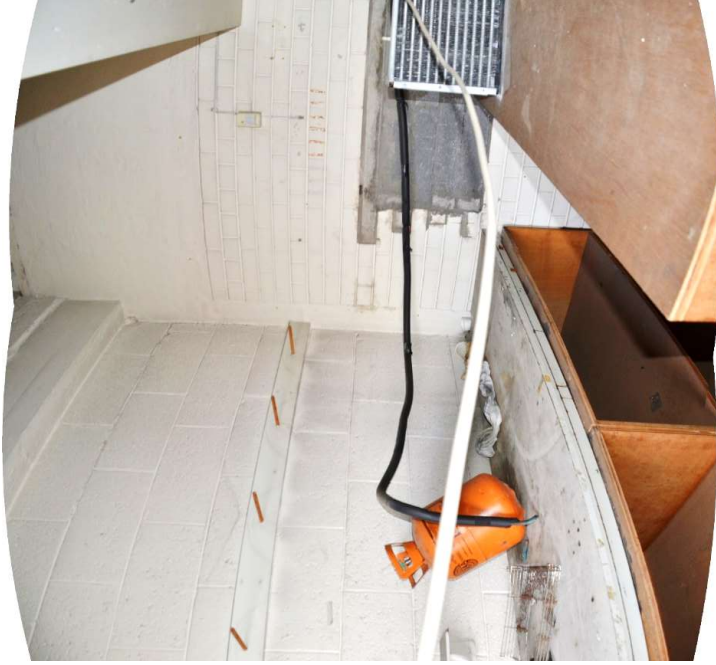
46. Hallway – First Floor Level



47. Office – First Floor Level



48. Office – First Floor Level



49. Storage Space – Attic Level



50. Stair Hall – Attic Level

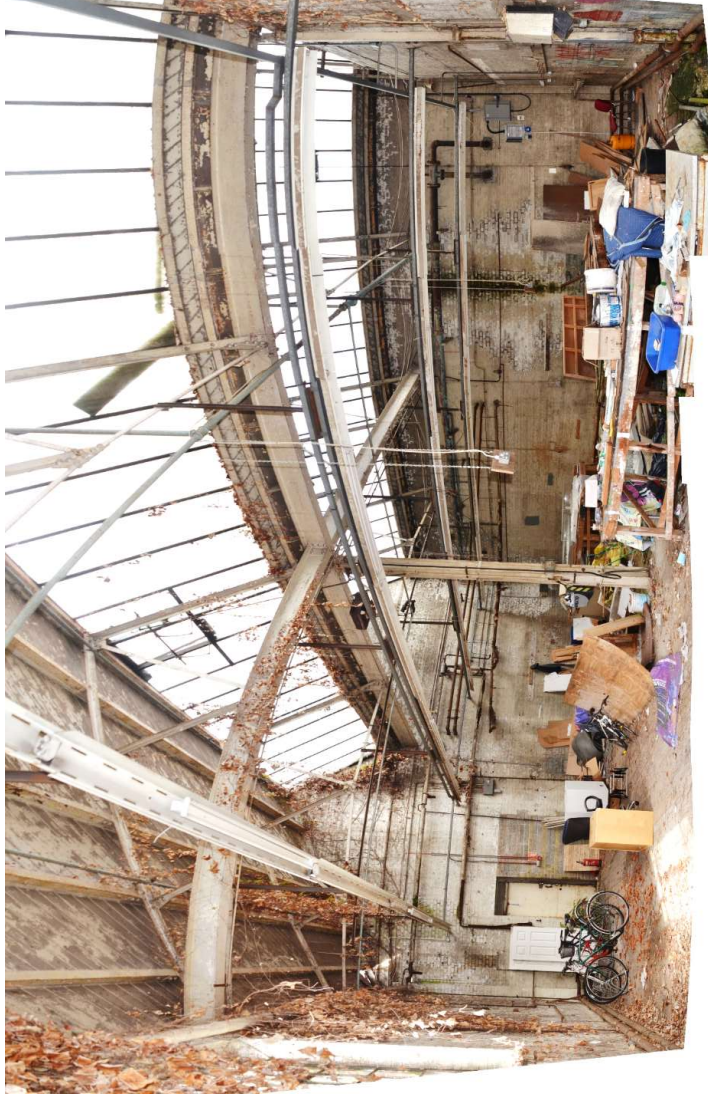


51. Storage Space – Attic Level

Player Wills Factory, South Circular Road, Dublin 8.

Photographic Record – Internal

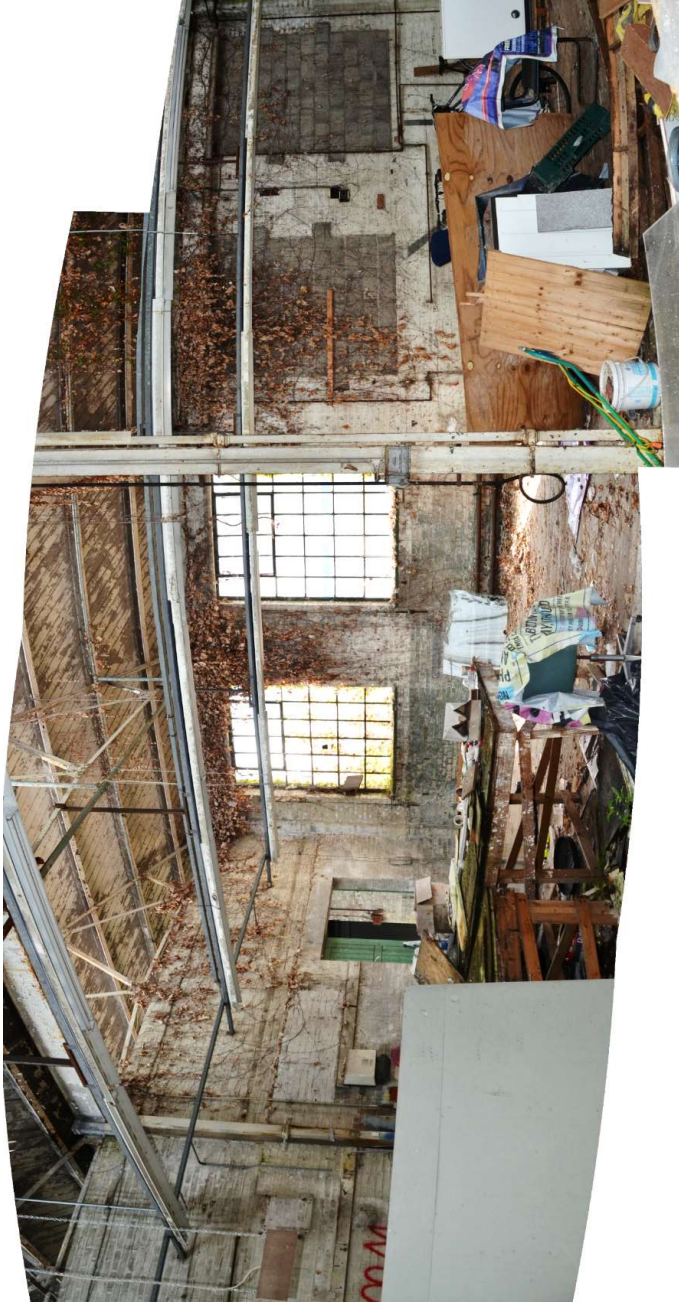
Block D



1. Interior – Section A



2. Interior – Section A



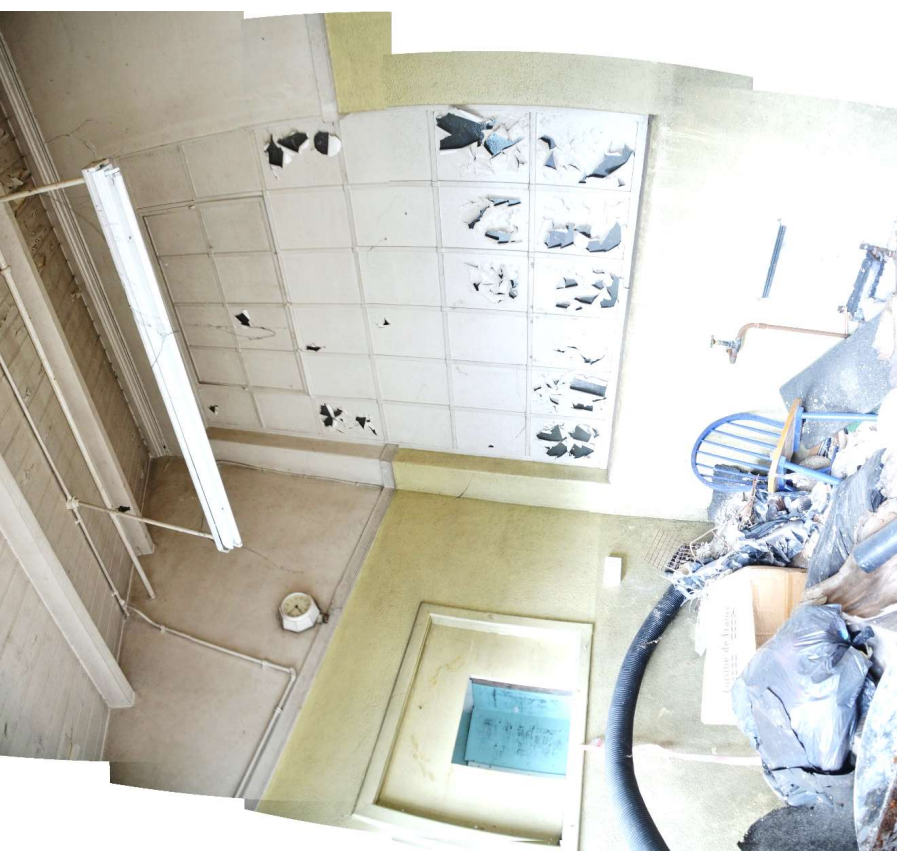
3. Interior – Section A



4. Interior – Section A



5. Interior – Section A



6. Interior – Section A



7. Interior – Section B



8. Interior – Section C

APPENDIX 14.7

BUILT HERITAGE: OUTLINE CONSERVATION SPECIFICATION

VOLUME III
APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

OUTLINE CONSERVATION
SPECIFICATION
FOR
WORKS TO BE CARRIED OUT
AT
THE FORMER PLAYER WILLS FACTORY,
SOUTH CIRCULAR ROAD,
DUBLIN 8.

November 2020



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Section 1 Introduction

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1.1. General

The works shall be carried in compliance with *RIAI Guidelines for the Conservation of Buildings* (3rd edition December 2010), and the conservation charters referenced therein, in addition to the publication *Architectural Heritage Protection: Guidelines for Planning Authorities* (as issued by the Department of Arts, Heritage & the Gaeltacht 2011).

1.2. Preliminary Method Statement

General

The Contractor will be required to prepare a detailed method statement for the works and to amend or augment this statement to take account of matters discovered during the works. He will be required to obtain the Architect's approval for the statement at each stage during the works and amend the statement as necessary to achieve the Architect's approval.

Guidance

The contractor will be advised that all works must be completed in accordance with good conservation practice and in conformity with the publication "*Architectural Heritage Protection: Guidelines for Planning Authorities – DoAHG, 2011.*"

Guidance on the application of conservation practice is to be found in the following documents which shall be adhered to:

- Architectural Heritage Protection: Guidelines for Planning Authorities. Department of the Arts, Heritage & the Gaeltacht 2011.
- Archaeology in the Planning Process. (Planning Leaflet PL13) Department of the Environment, Heritage and Local Government, 2007.

Drawings and Schedules

The Contractor may be required to prepare full survey drawings of each element to be repaired before commencing, together with full size details of the various components, joints, profiles etc. etc. and schedules of the various components to enable the correct procedure for repair. A full photographic record should also be kept. In addition, the various components shall be clearly labelled and recorded on the drawings. When fully examined, the full size details of the various repairs necessary will be prepared by the Contractor before commencing any repair works and all repairs scheduled. The Architect's approval to this documentation shall be obtained at each stage before proceeding to the next stage and two copies of all such documentation shall be given to the Architect for his records.

Deviations

No deviations from the Architect's details will be permitted without prior approval. No deviation from the approved full sized drawings will be permitted without the Architect's prior approval. All dimensions as shown on the drawings shall be finished sizes unless otherwise indicated.

General Matters

All components shall be carefully examined to determine the method of assembly. All items shall be referenced and locations logged. No damage to the items shall be result from these works other than that unavoidable arising from the examination. The full records shall be handed to the Architect upon completion.

Detailed Method Statement

Based on this document and the results of the contractor's preliminary inspection, the contractor will prepare a detailed method statement covering all aspects of the works. He will be required to submit this statement to the Architect before any works is put in hands and to adjust, amend and revise the statement until the Architect is satisfied that it offers the most appropriate methodology for the works and approves the statement. It should be noted that it will be necessary for the contractor to further adjust, amend and revise the statement as works progress to take account of particular matters encountered during the works. Such alterations will be subject to the same approval process as the original statement. Once the statement, or alterations to the statement have been approved, the contractor may embark on the works, however, such approvals shall not relieve the contractor for any liability for unavoidable damage to the items.

Tests

Should the contractor feel that, in order to prepare his detailed method statement, it would be necessary to undertake test disassembly or removal operations, he will be permitted to do so with the prior approval of the Architect and under the constant monitoring of Architect's representatives. The Architect will co-operate with the contractor in designating the most appropriate items to be the subject of such tests. However, if any test is deemed to be causing damage to any item, it must be stopped immediately upon the Architect's request to do so. In such cases, an alternative item may be designated for test if the Architect deems such a course of action is appropriate.

Records

All items shall be fully recorded by photograph, highlighting all extant damage to the items and any other means considered necessary to properly record the extant appearance and condition of the items. The Contractor shall include for all costs in connection with the proper photographic recording of all necessary items including ceilings, walls, tiling, stonework and repair works to same. The contractor will be held responsible for any damage not recorded before removal or disassembly. The precise location shall be recorded and coded so each item or dismantled part of each item can be precisely located. This code shall be marked on each item or dismantled item by such means as cannot be accidentally removed but can be easily removed without blemish upon completion of the repairs at a later stage. Similarly, each individual disassembled part of an item shall be coded so that its relationship to adjoining parts can be precisely identified and recorded on drawings, photographs or other approved means. Two copies of the above records shall be handed to the Architect upon completion of these works.

Detailed Inspection

Before commencing disassembly or removal and following the approval of the Detailed Method Statement, the contractor shall very carefully examine the item to confirm or otherwise the accuracy and effectiveness of his proposed method. The Contractor's attention is drawn to the fact that items may have different methods of assembly or that individual parts may differ from those already disassembled or removed and he will be required to adjust his work methodology to accommodate these variations. He will be required to undertake such detailed inspection on a continual basis during the complete disassembly and removal operations.

Damage

Any damage not recorded before disassembly and removal or arising from disassembly and agreed with the Architect as unavoidable, shall be the responsibility of the contractor. He will be required to repair the damage at his own expense or to reimburse the Architect for the

cost of such repairs by means of deductions from any payments made by the Architect to the contractor.

Repairs

When all of the components are ready for inspection, the Contractor shall, in conjunction with the Architect, prepare a detailed schedule of necessary repairs to the shelving including re-finishing. He shall prepare all necessary full sized details to illustrate each and every type of repair and agree the details with the Architect before commencing the repair operations. All repairs shall be executed as specified later in this document. The Contractor shall note that existing repairs shall be undone and remade if the standard is not acceptable or may be left if the standard is acceptable. The repaired work shall be finished to match the original.. All softwood originally intended to be unfinished shall remain unfinished. All moving or movable parts shall be checked and repaired as necessary to ensure proper operation.

Reinstatement

Reinstatement shall be undertaken in the reverse order of removal. Great care shall be taken to ensure that each item and component is reinstated in its original location. Any damage caused by the reinstatement shall be made good or replaced at the Contractor's expense to the Architect's satisfaction. Any damage to the finishes shall be repaired in such a manner that the repair is not visible.

1.3. General Conservation Methodology

1.3.1. Protection Of Existing Structures And Materials

The Contractor shall ensure that no damage occurs to the Existing Structures as a result of the execution of the Works.

1.3.2. Protection Method Statement

The Contractor shall prepare a site specific method statement detailing the proposed protection measures to be implemented in respect of the Existing Structures. This shall include, as a minimum, details of the following:

- Measures to ensure protection of the existing roof structure and materials during the course of the Works;
- Measures to ensure protection of existing building fabric, both external and internal, during the course of the Works;
- Measures to prevent water ingress during execution of the Works;
- Proposed method of access to roof Areas – both during the Construction Period and Service Period;
- Measures to ensure the stability and protection of Existing Structures during repair and replacement works to the structural fabric of the Existing Structures; and
- Details of other measures required to address Site specific issues.

The Conservation Architect shall review all such method statements for compliance with conservation best practice.

1.3.3. Protection And Storage

The Contractor shall ensure that retained floors along the main construction route must be protected.

Storage of builder's equipment and materials must be in designated compound Area/s. While works are underway, equipment and materials being transported around the Project Facility, temporarily stored and used, must be carefully positioned so that retained historic fabric and surfaces are not damaged.

1.3.4. Movement Of Equipment And Material

Transport & erection of scaffolding poles / planks pose a particular threat to fabric. These and all long items such as floor boards must be carried by minimum of two operatives at all times to ensure no damage and impact to fabric.

Loading

Positioning of any removed or stored materials shall not overload the existing structure.

Fixing to Historical Fabric

Scaffolding and working platforms must be independently supported and may not be fixed to the Existing Structures. Full plywood protections must be provided between scaffolding supports and retained historic flooring / paving of Existing Structures.

Specialist Contractors

The Contractor shall ensure that all parties engaged to undertake works to Existing Structures are competent to undertake the elements for which they are engaged. Contractors must have the relevant training and experience to carry out specialist works within historic buildings.

1.3.5. Works Methodology

The Contractor shall prepare a Site specific method statement detailing the proposed methodology and sequencing to be implemented in respect of the retained fabric of the Existing Structures.

The methodology shall also describe how mitigation measures set out in the conservation impact assessments forming part of the Planning Decision are complied with.

1.3.6. Recording

The Contractor shall clearly and comprehensively record all Areas opened up within Existing Structures through the use of good digital photographs (minimum 10.1MP). Photographs shall record all principle features uncovered including architectural and structural elements, service routes, chases, floor voids and areas that will be closed up. As-built record drawings are to be provided to the Authority at the completion of the works including with referenced digital photographs.

1.4. Extent of Conservation Works

The following is a outline of the work to be carried out. Please refer to drawings, schedules and specifications for more detailed descriptions of the proposal.

The areas for the relevant works are identified on the drawings by Henry J Lyons Architects. Following is a summary of the proposed conservation works –

- Rake out the modern cement pointing to the front façade, clean and repair brickwork, and repoint using an appropriate lime mortar
- Localised repair works to stone and concrete elements on the front and side elevations, as necessary
- Reinstatement of multi-pane steel windows to match the original profile to existing ones, as detailed in the Window Schedule
- Localised repairs to relocated iron gates and railings, as necessary.
- Reinstatement of salvaged elements within Block A.

Section 2 Specifications

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2.1. Brickwork

BRICKWORK

2.1.1. General

The Contractor shall ensure that brick work and repair is carried out by competent and suitably experienced crafts persons.

Brick shall be of prime quality and match the existing brick on Site.

Code of Practice – Brick

The Contractor will be required to comply with the relevant sections of the latest editions of the following: -

- BS 5628 (Parts 1-3) Code of practice for the use of masonry;
- BS 8221-2:2000 Code of practice for cleaning and surface repair of buildings. Surface repair of natural stones, brick and terracotta.
- BS 8221-1:2012 Code of practice for cleaning and surface repair of buildings. Cleaning of natural stone, brick, terracotta and concrete (incorporating corrigendum No. 1).
- BS 5628-1:2005 Code of practice for use of masonry. Structural use of unreinforced masonry (incorporating Corrigendum No.1) (No longer current but cited in Building Regulations)
- BS 7913:1998 Guide to the principles of the conservation of historic buildings.
- IS EN 459-2:2010 Building lime - Test methods.
- IS EN 459-1:2010 Building limes - definitions, specifications and conformity criteria.
- IS EN 12440:2008 Natural stone - Denomination criteria.
- IS EN 12326-1:2004 Slate and stone products for discontinuous roofing and cladding - Product specification.
- IS EN 771 - Specification for masonry units.
- BS 5385-2:1991 Wall and floor tiling. Code of practice for the design and installation of external ceramic wall tiling and mosaics (including terracotta and faience).

Standards

The works shall be carried out in all respects to comply with British Standards 1014, 1217, 5589, 5390 and 6270. Scaffolding shall comply with B.S. 5973 and 5974. Variations may be permitted from these standards with the prior written permission of the Architect.

Materials

Brick

New brick, etc., where required, shall match the existing, when cleaned as specified later, as regards type, colour, texture, porosity, crushing strength, appearance etc. Samples of such brick shall be delivered to the Architect's office for his selection. All brick shall be free of all vents, cracks, fissures, soft beds, firing defects etc. or other defects which may affect durability. All arrises shall be true and straight and no damage will be permitted. The Contractor shall note that it may be necessary to have the brick specially manufactured by an approved manufacturer in order to ensure that the brick properly matched the original in all respects.

The Contractor shall note that different matching bricks may be required for repairs to the house. In addition, specials, particularly voussoir bricks will be required for the window heads and these specials will be required to match the brick elsewhere on the elevation. He will be

expected to have made all necessary allowances for the amounts of each distinct type of brick required for the works and no extra will be allowed for his failure to do so.

The Contractor's attention is specifically drawn to the possible different sizes of the existing bricks which will have to be replicated in the repair brickwork. On no account will larger (or smaller) joint dimensions be permitted to allow the use of standard bricks or to reduce the number of differing sizes required for the works.

With regard to the specials, the Contractor will be permitted to arrange for the various sizes and specials necessary to be specially manufactured or to be worked (cut and / or rubbed) from larger sized bricks. In either case, all such bricks shall match the adjacent 'common' brick in all respects as noted earlier and the manufacturing or working process shall in no way interfere with or be damaging to the durability, stability, weathering characteristics or visual characteristics of the brick.

Salvaged Brick

The Contractor shall note that while all the brickwork included in the works has been specified to be new brick, the use of sound salvaged brick will be permitted with the Architect's prior approval. Salvaged brick shall match the original in all respects as specified in the earlier clauses and shall have all old mortar, splashes etc. removed without damage to the fire skin, arrises etc. Salvaged brick may be sourced from a suitable supplier or may be suitable brick arising from the works and will be subject to the Architect's approval. Such approval, once given, shall not relieve the Contractor from his responsibility to ensure that the brick complies with the requirements of this specification. Should any brickwork built from such approved salvaged brick subsequently exhibit any damage or inherent or latent defects that would have led to its rejection at the time of approval if such characteristics had been apparent at that time, it shall be removed and replaced at no additional cost. The Architect's decisions shall be final and binding in all these matters.

The Contractor shall note that it would be the Architect's intention to use as much as possible of the original brick, salvaged from the works and meeting the above specification, in the works. However, it is not possible to give any indication as to the quantities that might be available for re-use. Therefore, any reductions in the amount of new brick necessary for the works arising from the re-use of original salvaged brick shall be treated as a credit on the contract.

Brick for repair

All brick for repair shall be from bricks specifically selected for that purpose by the Architect and shall match the original in all respects, including size, colour, texture, porosity, finish etc. This brick may be either re-cycled salvaged brick or new brick with the Architect's prior approval. New brick shall be sourced from a specialist manufacturer approved by the Architect as specified earlier. The Contractor shall make provision for the erection of 3 trial panels as directed by the Architect, each panel measuring a minimum of 1 m. x 1 m. All repairs shall be so worked and finished that they are not visible when viewed from a distance of 4 meters. The Contractor's attention is drawn to the construction of flat and arched lintols, where purpose-made shaped voussoir bricks will be required.

Cement

Cement shall be white or grey Portland cement, to comply with BS EN197.

Repair Mortars

Repair Mortars shall be specialised materials supplied by a specialist supplier approved by the

Architect. They shall be specially prepared to match the parent material in all respects as regards colour, texture, durability, porosity, density, compressive strength etc. Approved suppliers would include repair mortars supplied by Messrs Keim, Messrs. Jahn, Messrs. Remmers and Messrs. SBD. Samples of the colour matched material shall be approved by the Architect before any work is put in hands. Preference shall be given to mortars that can be left proud and worked back once the initial set has been completed to avoid the 'case hardening' effect of the worked surface and any residual cracking in the completed repair.

Water

Water for the works shall be clean, potable and free from any impurities, deleterious matter or harmful chemicals.

Lime

Lime shall conform to BS EN459 for the purpose required and shall be hydrated or lime putty

Sand

Sand shall comply with BS EN13139. Where sands are to be used in lime mortars or gauged lime mortars, great care shall be taken to ensure that no water retaining properties are contained within sands which would interfere with the carbonation of the lime. The Contractor shall note the coarse and fine sands used in the varying pointing types extant on the building and will be required to obtain sands that will match these gradings.

Mortar Mix

The mortar mix shall be in accordance with Tables 4 and 5 of B.S. 6270 part 1, or as specified elsewhere in this document.

Fixings

All fixings, dowels, cramps, restraints etc. shall be of non-corrodible, non-ferrous metal or stainless steel grade 316 as selected by the Architect to the appropriate B.S.

Cleaning Chemicals

Chemicals for cleaning brickwork shall be approved by the Architect. These chemicals will be from the Neolith, Intrachem, Remmers and or Prosoco ranges of chemicals. Trials must be completed in advance of the cleaning programme to determine the appropriate times for application of chemicals. The Contractor should keep in mind that these materials contain injurious chemicals and the manufacturer's safety precautions must be prominently displayed, and adhered to at all times. The chemicals must be applied in accordance with the manufacturer's recommendations. The recommended Safety First Aid Kit should be maintained on site and readily available during operations.

2.1.2. Repointing Brickwork

Raking Out

The raking out shall be carried out using chisels or other appropriate instruments. Mechanical systems, hand saws or hand discs for raking out shall not be used excepts with the prior approval of the Architect and the Contractor, if he desires to use such methods, will be required to demonstrate the effectiveness of the methodology to the Architect. If such demonstrations fail to satisfy the Architect, the Contractor may demonstrate further developments if he so wishes in order to obtain the Architect's approval. However, the Architect retains the right to instruct that the raking out must be undertaken by manual means at no additional cost to the Employer notwithstanding the results of all or any of such tests.

Areas indicated on site and on the drawings by the Architect to be re-pointed shall be carefully raked out to a depth equal to twice the width of the joint with a minimum depth of 15 mm. Great care shall be taken to ensure that the brick or any arrises are not damaged. Upon completion of the raking out all loose matter shall be carefully removed.

Pointing Generally

All the existing brickwork shall be fully re-pointed. The mortar mix shall be as specified above and must always be slightly weaker and slightly more porous than the masonry and bedding mortar being pointed. Re-pointing shall be carried out from the top, the joints having being first wetted, and proceed in one continuous operation, all mortar being carefully rammed well home into the joints to ensure no voids remain. The finishing of the pointing shall be as directed by the Architect and would include a lightly brushed finish.

All areas of pointing shall be fully protected from sun, wind, rain, extremes of temperature etc. to ensure that the mortar dries and cures and carbonates properly. In particular, the Contractor shall guard against any of the protection forming microclimates, wind tunnels etc. which would adversely affect the finished joint - refer to the relevant Technical Guidance Documents published by Historic Scotland.

The amount of water used to dampen the joints shall be carefully controlled to prevent the joints being saturated and only those amounts necessary to adjust the 'suck' due to the porosity of the substrate shall be used. On no account shall water be allowed to lodge in the joints and on no occasion shall any pointing be undertaken while water is lodging. Should any instances of the pointing mortar being damaged by lodging water become apparent, these shall be removed and replaced by the Contractor at his own expense to the Architect's satisfaction.

All joints between windows and brickwork shall be carefully raked out, packed with a compressible bitumen impregnated foam, and pointed up in mortar. Alternatively, joints may be packed with mortar as required and pointed with translucent or colour matched two pack Polysulphide or Silicon Mastic to B.S. 5215 or 5889 applied in strict accordance with the manufacturers' instructions.

If deemed necessary by the Architect, all joints shall be taped to prevent the mortar staining the surfaces of the masonry. It is imperative that the tape should not damage the face of the masonry and is able to withstand the pointing operations. Samples shall be approved by the Architect before the work is put in hands.

On no account shall individual bricks be pointed in isolation. If necessary, pointing shall be delayed within a 1 m. radius of isolated repairs in order to achieve an acceptable visual appearance. All such instances shall be brought to the Architect's attention and his instructions carefully followed.

Sample Panels

The Contractor shall provide for carrying out sample panels of the pointing under the Architect's direction. When the Architect is satisfied that there is a sample panel for each type of pointing finish required, he will nominate these panels as the standard by which the executed work on the building is to be judged. All rejected panels shall be immediately removed from site or raked out to ensure that no confusion shall exist. The standard panels shall remain undisturbed until such time as the Architect nominates a panel of the completed work to be the standard, at which time the original shall be removed. All pointing work which fails to match the standard shall be raked out and re-pointed to match the standard at no

expense to the Employer and the Architect's decision shall be final and binding in all such matters.

Existing Mortar Repairs

Existing Mortar repairs will be removed by the works. All marks, residues etc. of this mortar left on adjoining brick shall be carefully removed without damage to the sub-strata.

Crack Injection

Where indicated on the Drawings or on site by the Architect or Engineer, cracks shall be injected by a specialist company approved by the Architect. In situations where it is necessary to create a structural bond, the injection shall consist of epoxy, polyester or other approved resin. Where a structural bond is not required, the material shall be a non-shrink latex formulation to prevent the ingress of water.

In all situations, care shall be taken in the location and installation of nipples, reservoirs etc. to ensure that no disfigurement of the surface results.

The crack shall be sealed to prevent the spillage of the injected material and to ensure complete filling of the crack. All splashes, runs etc. shall be immediately removed to prevent disfigurement. It may be necessary to use a variety of low viscosity and thixotropic material to ensure complete crack filling and, where appropriate, the proper structural bond is created. The injection shall be undertaken by means of hand pumping and wherever necessary, the resins shall be heated to assist flow characteristics. At all times during these operations, continual monitoring shall be provided to ensure the resin does not emerge where not expected. The nipples, reservoirs shall be so placed to form a checking system of the penetration as resin exudes from adjoining nipples, but care must be taken that this does not 'short-circuit' the coverage.

Upon completion, the nipples, reservoirs, injectors, etc. shall be carefully removed, the areas cleaned and the surface of the crack pointed in a colour matched mortar so that it is not visible when viewed from a distance of 3 meters from the repair. Particular care shall be taken where the nipple fixative and crack sealant sets to a hard bond to ensure their removal does not disfigure the surrounding brick.

2.2. Stonework

STONEMWORK

2.2.1. Cleaning Granite

Standards.

These works shall comply with the requirements of BS 6270 and BS 5390

Methods

It is generally intended that granite shall be cleaned by fine, low pressure abrasive applied dry, with localised cleaning by means of poultice, where necessary. Limestone will be cleaned by low pressure steam, with localised chemical applications as necessary. Contractors will however be required to consider the use of alternative methods, where the foregoing methods fail to yield the desired result.

Materials

Chemicals for cleaning stone shall be approved by the Architect. Algaecides would include Alkutex paste from the Remmers range of chemicals, Algae-Rem from the Intrachem range of chemicals or Neolith 800 from the Neolith range of chemicals. Cleaning chemicals will be from the Neolith range of chemicals and will include Neolith HDL, or from the Intrachem range of chemicals, including HD400s and SC100 or from the Prosoco range of chemicals, including 766 Limestone & Masonry Prewash, Limestone & Masonry Afterwash and 1217 Heavy Carbon Poultice. Trials must be completed in advance of the cleaning programme to determine the appropriate times for application of chemicals. As these chemical cleaners differ slightly in their effectiveness on differing substrates, the Contractor shall allow for the Architect to select whichever chemical he deems most effective to be used on the works. The Contractor should keep in mind that these materials contain injurious chemicals and the manufacturer's safety precautions must be prominently displayed, and adhered to at all times. The chemicals must be applied in accordance with the manufacturer's recommendations. The recommended safety First Aid Kit should be maintained on site and readily available during operations.

Cleaning generally.

Only fully experienced and trained workpeople shall be permitted to carry out cleaning works, and full protection for the operatives, scaffold, woodwork, glass, ironwork, different adjoining masonry material types etc., shall be provided. In addition, full protection for persons and property in the vicinity of cleaning operations shall be provided. All safety recommendations shall be strictly adhered to.

Steam Cleaning Methodology

Extent of Cleaning

The Cleaning shall be undertaken before the pointing is raked out and, following raking out, the Contractor shall agree areas of residues to be cleaned as part of the final rinse down operation.

Cleaning Methodology

Steam cleaning shall be carried out using a low pressure, high temperature system, DOFF or equal and approved system designed to eliminate water penetration. Only skilled operatives should undertake this work and the manufacturers specification must be exactly followed. Extreme care must take to avoid saturation of the stonework.

As with all operations involving water on the surface of the building, operations shall be suspended during time when freezing conditions apply or can be expected. To this end, no

work shall be undertaken below a temperature of 4 degrees centigrade on a rising thermometer or below 6 degrees centigrade on a falling thermometer. In addition, the effect of wind conditions may also require the suspension of operations.

Chemical Cleaning Methodology

Extent of Cleaning

The Cleaning shall be undertaken before the pointing is raked out and, following raking out, the Contractor shall agree areas of residues to be cleaned as part of the final rinse down operation.

Cleaning Methodology

Initial cleaning shall comprise of the removal of all algaecidal, biocidal and fungicidal growths, particularly where these have built up on the surface of the stonework. The stonework shall then be treated with an approved sterilising fluid as specified earlier (Remmers Alkutex Paste, Intrachem Algae-Rem or Neolith 800) used strictly in accordance with the manufacturer's recommendations and safety requirements. Particular care must be taken to ensure that the chemical is well worked into the friable surfaces of the stone without damaging the stone. It shall be permitted to remain in contact with the stone for the length of time recommended by the manufacturer or as determined by the on-site trials. Upon completion of this contact time, it shall be rinsed off as recommended by the manufacturer using warm water where appropriate, care being taken to ensure that none of the stone is saturated. If necessary, repeat applications shall be applied to ensure all spores, seeds, etc. etc. are fully sterilised.

Following the application of the sterilising fluid, all stone shall be cleaned as specified below. The Contractor should note that while a single manufacturer's product is included in this specification, he may use similar chemicals of other manufacturer's as specified under 'Materials'. The Contractor should note that the Architect may require that the material chemical from one particular manufacturer must be used in the works if the tests indicate that this particular chemical is the most effective. The general intention is that material from a single manufacturer should be used for all stages in this cleaning process.

Stonework shall be cleaned with specific manufacturer's materials as previously specified, always used in strict accordance with the manufacturer's instructions and safety recommendations. In all cases, the cleaning shall be undertaken in panels coinciding with a natural break in the building - details of these panels to be agreed with the Architect before the works commence.

All adjoining different masonry materials, quoins, etc, in granite, glass, metalwork etc. shall be carefully protected before commencement. On no account should any chemical, or rinse water from areas cleaned with chemical, be permitted to come in contact with dry masonry. Areas at particular risk are those underneath the current site of operations. It is imperative that all such areas are fully protected before operations commence and rinse guttering provided.

Particular care must be taken at junctions between stone to be cleaned and stone not being cleaned, particular at the granite quoins or other decorative stonework at such interfaces. On no account shall the cleaning be allowed to affect the adjoining stone or to alter the appearance of this stone. In such instances, the Contractor will be required to provide plywood cut-outs or similar and approved protection to ensure that the adjoining stonework is not affected.

Sample panels are to be completed before the cleaning commences in areas selected by the Architect, to enable contact times to be established. In all cases, tests to ensure the surface is chemically neutral shall be undertaken 3 days after completion of the cleaning using litmus or another approved method.

As an alternative, or in addition to the liquid chemical cleaning, AB57 Poultice may be used on Calcareous materials. The recipe for the poultice and use methodology is contained in an Appendix to BRE Digest 280 and these instructions shall be strictly followed. In particular, the precise type, strength, chemical composition and use of the constituents of the poultice shall be strictly followed and no deviations will be permitted.

Resistant staining shall be removed by poultice or other methods recommended in B.S. 6270 or B.R.E. Digest 280 and approved by the Architect.

Paint disfigurement shall be completely removed. This may be achieved by the use of Neolith HDL or Intrachem SC100 as specified above, but where this is unsuccessful, or where a 'shadow' of the stain remains, these shall be removed by 'Peelaway', Remmers (Interchem) or Tensid 'AGS Graffiti Removers' or similar and approved paint removal poultice, used in strict accordance with the manufacturer's recommendations.

As with all operations involving water on the surface of the building, operations shall be suspended during time when freezing conditions apply or can be expected. To this end, no work shall be undertaken below a temperature of 4 degrees centigrade on a rising thermometer or below 6 degrees centigrade on a falling thermometer. In addition, the effect of wind conditions may also require the suspension of operations.

Where the cleaning operations are undertaken above the roof level or at junctions with roof finishes etc. great care must be taken to ensure that these operations do not cause damage to adjoining finishes.

Abrasive Cleaning Methodology

Cleaning shall be achieved by the following methodology in strict accordance with the manufacturer's recommendations.

The masonry shall be cleaned using the NeoClean 300 System or similar and approved mild abrasive cleaning system in strict accordance with the manufacturers instructions and safety recommendations. The abrasive to be used shall be fine grade calcium carbonate applied dry. No water shall be used. Great care will be required to ensure that no salts within the stone are liberated by the cleaning which may result in staining due to the deposit of the salt on the surface of the stone, iron ores are particularly damaging in this respect. On no account shall the pressure of the abrasive at the nozzle be permitted to exceed 10 p.s.i. and shall be, wherever possible, less (in the 5-10 p.s.i. range) to obviate the possibility of damage. As far as practical, the finer grades of abrasive shall be used, but the Contractor's attention is drawn to the fact that heavy encrustations of dirt, plaster residues etc. may have to be removed using the coarser grades to reduce the necessary contact time and prevent damage to adjoining fragile stonework.

Before the work commences, the Contractor shall undertake sample panels as directed by the Architect to determine the grade of abrasive, the contact time and the optimum pressure for the operations.

The cleaning operations shall be undertaken by holding the nozzle approximately 1 meter from the surface of the stone at an angle of 45 degrees to the plane of the surface of the stone, unless the 'Joss' type nozzle, which delivers the abrasive mixture moving in a spiral motion, is being used in which case the nozzle shall be at right angles to the plane of the surface of the stone. The nozzle shall be moved over the surface in gentle, even strokes both vertically and horizontally to achieve an even clean appearance to the stone without causing any damage to fragile areas, particularly fine, weathered arrises. In areas where there is any doubt, cleaning operations shall be suspended before any damage occurs and the residual dirt allowed to remain until such time as the Architect has inspected the work and given instructions as to the procedure to be followed to complete the cleaning work. On no account shall 'gun shading' be permitted to occur or the surface of any stone cleaned by these operations.

The Contractor shall complete the initial cleaning of each area in a single pass operation and subsequently return to clean isolated areas that have particularly heavy or stubborn accumulations, plaster residues etc. until a clean even visual appearance to the Architect's satisfaction is achieved. The Contractor may, if he so wishes, commence operations by removing heavy or stubborn accumulations at the outset before the general cleaning, but in either case, each section must be completed in a single operation and there can be no instances leaving any section incomplete.

The Contractor shall, before the work commences, agree with the Architect the programme and limits of the areas to be cleaned. As far as possible, the boundaries shall occur at natural breaks in the facade, changes of plane, string courses, cornices, etc.

Spent abrasive shall never be allowed to accumulate on the scaffold or on the face of the building and must be bagged and removed at appropriate times during the day's work. The Contractor should note that the calcium carbonate abrasive tends to form a slurry and stick to the surface of the stonework. This must be cleaned away immediately as the effectiveness of the completed cleaning cannot be determined while such deposits contaminate the surface.

The Contractor should note that the use of J Blast Finesse will generally not be permitted.

At all times, a pressure gauge incorporating a hypodermic type needle shall be on site to enable the pressure to be checked.

Residual Staining

Residual staining shall be removed by poultice or other methods recommended in B.S. 6270 or B.R.E. Digest 280 and approved by the Architect.

As noted at the beginning of this work section, the Contractor will be expected to have made all necessary allowances for all necessary test cleaning to establish the most appropriate cleaning methodology. This would include a number of distinct visits to site to complete individual trials, time to assess the effects of the cleaning over a period of weeks and the provision to reverse the cleaning process to commence with the NeoClean system and to subsequently clean areas by the chemical cleaning where the NeoClean system has been unsuccessful. No extra will be allowed by his failure to make such allowances or the inadequacy of his assessment.

2.3. Metalwork

IRONWORK

2.3.1. Cleaning and Surface Preparation

General.

The preparation of a sound surface shall involve removal of old paint, rust, loose mill scale and soluble corrosion salts. It should be noted that paint removal may reveal cracks, corrosion and casting defects which were not previously visible. Allowance should therefore be made at the outset for dealing with these.

Old paint and repainting

All paint which is loose, perished or flaking shall be removed. Only wet hand processes should be used because of the risk from dust from lead pigments.

Small areas of paint can be removed with thixotropic paint strippers such as methylene chloride. Their residues must be removed by white spirit or water, as appropriate.

Flame cleaning and hot air blowers are also effective paint removers. These must be used with care on thin cast iron because of the thermal stresses which can be set up by localised overheating.

Mill Scale

Loose or defective mill scale must be removed. Evidence suggests that wrought iron receives corrosion protection from sound, adherent mill scale, and for this reason flame cleaning is the preferred treatment.

Soluble corrosion salts

Ferrous sulphate and ferrous chloride and other water-soluble salts must be removed from the bottom of pits within an iron surface. They are not readily removed by cleaning with large-sized abrasive particles.

Degreasing

All oil or grease shall be removed. Large quantities should be physically removed by scraping. The rest is best removed by warm water and detergent followed by thorough water rinsing. Non-caustic degreasing agents will also be permitted.

Manual preparation

The simplest form of surface preparation of iron involves chipping, scraping and brushing with hand-held implements. It should be noted that while surfaces prepared in this way may appear burnished and clean, only about 30% removal of rust and scale may be achieved. Scoring of valuable surfaces and loss of detail may also occur. Manual preparation should therefore only be used where alternative methods are not available. A corrosion-inhibiting primer such as red lead or zinc phosphate should then be used.

Mechanical preparation

These processes involve use of power-driven tools such as grinders and rotary wire brushes and provide a marginal improvement in efficiency over manual preparation. Rust or other deposits in pits and crevices are rarely removed. Needle-guns, however, can be used successfully to access awkward corners and angles inaccessible to other equipment.

Flame cleaning

An oxyacetylene or oxypropane flame should be passed across the iron, resulting in the detachment of rust and loose mill scale, which should be removed by wire brushing. Thin sections of wrought iron of less than 2 mm may warp during flame cleaning unless the method is used with care. Extreme care should be taken to avoid the fusing of un-bonded scale and other foreign matter.

Acid pickling

Items should be immersed in a bath of warm dilute sulphuric acid or dilute phosphoric acid to dissolve and remove mill scale and rust. On removal from the bath the iron must be thoroughly rinsed with clean water. Hydrochloric acid and sodium hydroxide (caustic soda) leave soluble salts on the metallic surface and should not be used. Site application of acid washes will not be permitted.

Dry Abrasive cleaning

Abrasive cleaning shall be used only for cleaning new work. However, due to the softness of wrought iron it should be noted that the milled or beaten surface may be removed or roughened unless great care is taken. The success of abrasive cleaning is highly dependent on careful work by skilled operatives, the right grits and the right supply of air pressure. Test areas shall be carried out to determine the correct air pressure and size of grit. In general abrasive cleaning to new iron and steel components shall be carried to Swedish S.S.I. 2½ standard.

Wet abrasive cleaning

Wet abrasive cleaning reduces the level of dust, and is preferable to dry especially where lead-based paint is to be removed. Cleaning should be carried out using a nozzle with independent control over air, water and abrasive. Wet abrasive cleaning may, however, cause unwanted water penetration at junctions, and the surfaces should be allowed to dry thoroughly prior to priming.

Precautions for wet and dry abrasive cleaning

For both methods great care must be taken to mask surrounding surfaces. All caulking which is dislodged must be replaced. It is necessary to ensure that operatives are adequately protected and the potential environmental hazards such as dust, spent abrasive, and abrasive-laden run-off are dealt with properly.

Re-rusting of cleaned surfaces

Cast iron or wrought iron members which have been cleaned by flame or dry abrasive should be primed before rust starts to form. If this is not possible the surface should be flash cleaned immediately prior to priming.

Galvanising

On completion of the cleaning and repair work all components shall, if possible, be hot-dip galvanised. Where, in the opinion of the Architect, the assembly of the components precludes galvanising, the Contractor shall prime all surfaces with an approved primer prior to painting.

The importance of good site supervision

Proper site supervision by competent staff is important at all stages of work on a historical iron structure but in particular during the preparation for and application of paint. Test areas on all types of surface present, e.g. bars and decorative work, should be observed to ensure the correct methods of cleaning and painting are chosen.

2.3.2. Painting Ironwork

Primers and inhibiting pigments

All surfaces to be painted shall first be primed with a zinc phosphate primer. A zinc primer may require a sealing coat and subsequent coatings need to be non-saponifiable, such as epoxy paints. As it is almost impossible to produce with one coat a continuous film of adequate and even thickness, free from pinholes, two coats of primer shall be applied.

In the case of galvanised surfaces, appropriate etching primers shall be used.

Where components have been removed from site for workshop repairs and in the case of new work, primers shall be applied prior to delivery, and touched up when fixed in position.

Application of Paints.

All metal surfaces to be painted shall receive two brush-applied coats of a selected two-pack epoxy paint such as 'Cotech' or other approved paint, in strict accordance with the manufacturer's instructions.

It should be noted that two-pack epoxy paints are not always suited to brush application, and the manufacturer's specification should be accurately followed.

2.4. Windows

WINDOWS

2.4.1. Specification

General.

This specification is outline in nature and intended to provide the basis for which the windows will be repaired. The Contractor will be required to prepare a detailed method statement and to amend and adjust it until such time as the Architect approves the document. The Contractor will be required to continually update the method statement as the work proceeds to take account of the various matters discovered during the works and to obtain the Architect's approval for each update as required for his original statement.

Existing Windows

All existing windows being retained where identified on the Architects drawings are to be carefully removed and set out to enable a detailed assessment of their condition and the necessary repairs to be undertaken. The Contractor shall carefully record the original position of each window and code the opening and window as the numbering system shown on the drawings, to ensure each window is returned to its original opening. It is the intention to repair the windows as far as possible as opposed to replacements; however, there are a number of modern replacements which do not match the original style and these are to be replaced with new (see Appendix 14.8 for further detail). Upon completion of the repairs, the windows are to be reinserted into existing openings with new fixings and all plasterwork, window boards, linings etc. to be reinstated or renewed as necessary.

Removal of Windows

The Contractor shall carefully remove all secondary components (balconettes, decorative features, etc.) as required to enable the windows to be examined in detail. It is likely that this will require the careful removal of the window boards and the stripping of any plasterwork to the reveals. Where decorative linings are encountered, these are to be removed as a single composite item as far as possible unless the Contractor can demonstrate to the Architect that it is necessary to remove them by element.

In addition, to enable a full assessment to be undertaken, the sashes shall be removed from the frames and other mechanical components shall be labelled with the window code and location of the component and safely stored. All such windows and components shall be stored in such a manner that they can be fully accessed to enable a detailed assessment of the windows and associated components to be completed.

In all cases, no damage shall be allowed to occur to the windows or any associated items of joinery as mentioned above and he will be responsible to repair or replace any damaged at his own expense and as decided by the Architect and at his own expense.

Detailed Assessment

The Contractor shall undertake a detailed assessment of each window to be retained and schedule the repairs necessary to return it to a durable working condition. It is the intention that any repairs or replacements should not be visible when the repairs have been completed and the window re-inserted in its original opening and decorated. When the detailed assessment has been completed, the Contractor shall agree the repairs necessary to each window with the Architect before the work is put in hands – the Contractor shall note that he may be required to amend the works to the window before the Architect's approval is obtained. In the case of the modern windows to be replaced, no detailed assessment will be required as new windows are to be provided.

Repairs

Where repairs are being undertaken, damaged metalwork shall be carefully cut out and replaced with new to methods approved by the Architect. As far as possible new windows shall match the original. All closing beads shall be renewed to match existing except in areas where the Architects indicate alternative arrangements.

It may be necessary to remove the glass from the metal windows to effect proper repairs.

All internal timber surrounds where present shall be stripped back to the original face and all paint removed. Particular care shall be taken to ensure that any weathered surface of timbers, any existing shakes, splits etc. are all stabilised and, if necessary filled, to ensure the durable adhesion of the new paint coatings.

Any damaged glazing beads and seals shall be replaced.

Refitting/Hinging Casements

All windows to be hung shall be carefully aligned and adjusted as required. Upon completion, the windows should open and close with the minimum of effort and should remain in the position set and not slide up or down. Only best fitting and opening restraints will be approved.

Installing Windows

All repaired or replaced window frames shall be reinstated in their original openings with fixings to match the originals or alternatives that have been approved by the Architect. In all cases, the external interface with the masonry, rendered or other walls shall be neatly pointed with a two pack polysulphide or silicon mastic bed.

All internal window boards, plaster linings and linings etc. shall be reinstated in such a manner that, when the decoration is complete, there is no evidence of their removal.

Decoration

All surfaces of ironwork/steelwork shall be prepared, primed and treated before installation. After installation, any damage to the surface finish shall be repaired and each window shall be checked to ensure it operates properly and any that fail to do so shall be adjusted as required.

2.5. Ancillary Joinery

ANCILLARY JOINERY

2.5.1. General

General Joinery

Timber for joinery to be decorated with opaque coatings (paint) be as follows:

- a) Hardwood shall be Class 2 to BS 1186, specially selected as suitable for usage intended as described in Appendix B and C. Hardwoods described as 'resinous' shall not be used.
- b) Moisture content shall not exceed the recommendations set out in Section 3 and Table 3. On no account shall the moisture content for external joinery exceed 17%.
- c) No exposed piths, arris knots, shakes, compression wood, sapwood, brittle heart, plugs, inserts or other natural defects or repairs will be permitted on any face of the hardwood. All timber shall be free from all decay and insect attack.
- e) The grain shall be clean and straight with clearly defined arrises, with the grain slope not exceeding 1:8. Exposed faces shall show the same grain characteristics throughout and shall be free from knots, stains, discoloration and checks.

Samples

The Contractor shall provide samples of the types of hardwood he proposes to use for the Architect's approval. All hardwoods used in the works shall be of an equal or greater standard to the approved sample.

Timber for Grounds etc.

Timbers to be permanently concealed and used for grounds etc. shall be free from decay and all defects that would affect its long term stability and durability or the accuracy of the completed works. It shall be treated with an approved preservative.

Hardwood for Lippings, Beads etc.

Hardwoods for lippings, beads etc. shall be virtually straight grained with good matching qualities and be of the same species as the Hardwood for the joinery.

Timber Sizes

Sizes shall be finished sizes and no deviation from these sizes will be allowed without the Architect's prior approval. In general, they should comply with the requirements of BS 5450.

Seasoning and Moisture Content

All timber shall be seasoned to the specified moisture content before the works commence. The Contractor shall prepare kiln drying schedules to ensure that the required time for drying, seasoning, sections size and ultimate usage are taken into account and kilning defects are avoided.

Plywood

Generally shall comply with BS 1455. Use as follows:

Grade 1 veneer	where clear finish required
Grade 2 veneer	where oil painting required
Grade 3 veneer	for concealed surfaces
Bonding type M.R.	for interior use

Bonding type W.B.P	for exterior use
Bonding type I.N.T.	not to be used
Marine plywood to BS 1088	for exterior use.

Medium Density Fibreboard

Medium density fibreboard shall be 'Medité' from Medite Ltd. Clonmel or other equal and approved, shall be the waterproof quality (Medité 313 - Moisture Resistance M.D.F.) with given centre core to the thickness shown on drawings.

Fixings

Fixings and adhesives shall be as specified in CARPENTRY.

Nail Lengths

Nail lengths to be not more than total thickness of sections to be joined less 3mm but otherwise not less than 2 times thickness of board/strip at point of fixing.

Screw Lengths

Screw lengths to be not more than total thickness of sections to be joined less 3mm but otherwise not less than twice thickness of board/strip at point of fixing.

Mastic

Mastic shall be non-setting butyl mastic to the approval of the Architect.

Glue

Glue shall be best quality synthetic resin glue and shall be approved by the Architect.

Adhesives

Adhesives for exterior use shall be synthetic resin type complying with BS 1304: Part 1, type "W.B.P." Adhesives for interior use shall be synthetic resin type complying with BS 1304: Part1, type "M.R." Unless otherwise stated, the following grades of glue bonding shall be used:

- a) INT for internal work.
- b) MR for internal work in humid areas.
- c) WBP for external work.
- d) Mastic shall be non-setting non-staining two pack polysulphide or silicon mastic to BS 5215 or 5889 to the approval of the Architect.

Workmanship

Standard

Frame accurately and execute in a sound workmanlike manner in accordance with best practice and complying with BS 1385: Part 2, but to true lengths and levels and avoid the use filling pieces.

Profiles and Mouldings

Existing mouldings and profiles, both for new works and repair works, shall be accurately replicated and the Contractor's attention is drawn to the subtle variation that exists throughout the six houses and that will be required to be replicated. The Contractor will be required to submit full sized drawings of each and every moulding and profile type to the Architect and shall be responsible for the accuracy of all such mouldings and profiles. Full sized samples of the original fabric (where these are available) and the Contractors proposed replicas shall be submitted to

the Architect to demonstrate compliance with this requirement. Profiles of sections shall not be modified from those shown on drawings without prior approval.

Surface Treatment

Sand and produce a smooth surface to joinery requiring a clear finish. Use approved filler to overcome the coarse grain, to uneven suction conditions or where growth rings are coarse. Coat all knots and stop nail and other holes to match adjacent wood. Joinery detailed to be oil painted is to give a surface such that if it is properly painted in gloss paint no imperfections will be apparent.

Finish

Plane, thoroughly clean, sandpaper and leave unstained for finishing as required.

Arrises

Arrises shall be as shown on drawings.

Punching

All nail heads shall be punched below timber surfaces which will be visible when completed.

Countersinking

All screw heads shall be countersunk not less than 2mm.

Pelleting

All screw heads shall be sunk 6mm below timber surfaces that are to be clear finished. Grain matched pellets not less than 6mm thick and cut from matching timber shall be glued in place and finished off flush with face.

Proprietary components

All proprietary components shall be fixed in accordance with manufacturer's recommendation.

2.6. Services Installation Philosophy

SERVICES INSTALLATION PHILOSOPHY

In general, the electrical works should attempt to reuse existing cable and duct positions, improving or adding to these where necessary. The addition of new trunking, ducting and cabling for the electrical will therefore be decreased and any new chasing/opening-up/notching etc. will be significantly reduced.

There is no existing mechanical provision in the house so any mechanical works will be more intrusive than the electrical services. In general, mechanical services will follow the lines of existing joists and, in all cases, will avoid the removal of any decorative fabric.

A brief list of 'dos' and 'don'ts', in relation to the M&E interventions is given below. It is not exhaustive but has been useful in guiding the design.

Do's

Make redundant, unsightly wiring, through use of wireless systems.

Removal of unsightly redundant wiring, surface trunking etc.

Existing services routes which are seen to be particularly intrusive within the historic structure should be revised and routed away to less critical locations.

Careful patching, making good and redecoration of any chases/holes in plasterwork and joinery that have been made previously.

Repairs of any notching in structures that has caused weakening.

Confine works, where possible, to single vertical and horizontal locations, away from areas of decoration.

Don'ts

Where possible, avoid any chasing into walls. If required, note on drawings now.

Where possible, avoid any opening up of ceilings or other historic fabric. If required, note on drawings now.

Drop down boxings to contain new ducts are not acceptable and are likely to be unsightly and have an impact on architectural features. If absolutely necessary, these should be noted on drawings now.

APPENDIX 14.8

BUILT HERITAGE: SALVAGE SCHEDULE & OUTLINE METHOD STATEMENT

VOLUME III
APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

SCHEDULE OF FABRIC AND FEATURES
TO BE SALVAGED

AND

OUTLINE METHOD STATEMENT FOR THEIR REMOVAL

TO BE CARRIED OUT

AT

THE FORMER PLAYER WILLS FACTORY,

SOUTH CIRCULAR ROAD,

DUBLIN 8.

November 2020



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Section 1 Introduction

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1.1. General

The works shall be carried in compliance with *RIAI Guidelines for the Conservation of Buildings* (3rd edition December 2010), and the conservation charters referenced therein, in addition to the publication *Architectural Heritage Protection: Guidelines for Planning Authorities* (as issued by the Department of Arts, Heritage & the Gaeltacht 2011).

1.2. Preliminary Method Statement

General

The Contractor will be required to prepare a detailed method statement for the works and to amend or augment this statement to take account of matters discovered during the works. He will be required to obtain the Architect's approval for the statement at each stage during the works and amend the statement as necessary to achieve the Architect's approval.

Guidance

The contractor will be advised that all works must be completed in accordance with good conservation practice and in conformity with the publication "*Architectural Heritage Protection: Guidelines for Planning Authorities – DoAHG, 2011.*"

Guidance on the application of conservation practice is to be found in the following documents which shall be adhered to:

- Architectural Heritage Protection: Guidelines for Planning Authorities. Department of the Arts, Heritage & the Gaeltacht 2011.
- Archaeology in the Planning Process. (Planning Leaflet PL13) Department of the Environment, Heritage and Local Government, 2007.

Drawings and Schedules

The Contractor may be required to prepare full survey drawings of each element to be repaired before commencing, together with full size details of the various components, joints, profiles etc. etc. and schedules of the various components to enable the correct procedure for repair. A full photographic record should also be kept. In addition, the various components shall be clearly labelled and recorded on the drawings. When fully examined, the full size details of the various repairs necessary will be prepared by the Contractor before commencing any repair works and all repairs scheduled. The Architect's approval to this documentation shall be obtained at each stage before proceeding to the next stage and two copies of all such documentation shall be given to the Architect for his records.

Deviations

No deviations from the Architect's details will be permitted without prior approval. No deviation from the approved full sized drawings will be permitted without the Architect's prior approval. All dimensions as shown on the drawings shall be finished sizes unless otherwise indicated.

General Matters

All components shall be carefully examined to determine the method of assembly. All items shall be referenced and locations logged. No damage to the items shall be result from these works other than that unavoidable arising from the examination. The full records shall be handed to the Architect upon completion.

Detailed Method Statement

Based on this document and the results of the contractor's preliminary inspection, the contractor will prepare a detailed method statement covering all aspects of the works. He will be required to submit this statement to the Architect before any works is put in hands and to adjust, amend and revise the statement until the Architect is satisfied that it offers the most appropriate methodology for the works and approves the statement. It should be noted that it will be necessary for the contractor to further adjust, amend and revise the statement as works progress to take account of particular matters encountered during the works. Such alterations will be subject to the same approval process as the original statement. Once the statement, or alterations to the statement have been approved, the contractor may embark on the works, however, such approvals shall not relieve the contractor for any liability for unavoidable damage to the items.

Tests

Should the contractor feel that, in order to prepare his detailed method statement, it would be necessary to undertake test disassembly or removal operations, he will be permitted to do so with the prior approval of the Architect and under the constant monitoring of Architect's representatives. The Architect will co-operate with the contractor in designating the most appropriate items to be the subject of such tests. However, if any test is deemed to be causing damage to any item, it must be stopped immediately upon the Architect's request to do so. In such cases, an alternative item may be designated for test if the Architect deems such a course of action is appropriate.

Records

All items shall be fully recorded by photograph, highlighting all extant damage to the items and any other means considered necessary to properly record the extant appearance and condition of the items. The Contractor shall include for all costs in connection with the proper photographic recording of all necessary items including ceilings, walls, tiling, stonework and repair works to same. The contractor will be held responsible for any damage not recorded before removal or disassembly. The precise location shall be recorded and coded so each item or dismantled part of each item can be precisely located. This code shall be marked on each item or dismantled item by such means as cannot be accidentally removed but can be easily removed without blemish upon completion of the repairs at a later stage. Similarly, each individual disassembled part of an item shall be coded so that its relationship to adjoining parts can be precisely identified and recorded on drawings, photographs or other approved means. Two copies of the above records shall be handed to the Architect upon completion of these works.

Detailed Inspection

Before commencing disassembly or removal and following the approval of the Detailed Method Statement, the contractor shall very carefully examine the item to confirm or otherwise the accuracy and effectiveness of his proposed method. The Contractor's attention is drawn to the fact that items may have different methods of assembly or that individual parts may differ from those already disassembled or removed and he will be required to adjust his work methodology to accommodate these variations. He will be required to undertake such detailed inspection on a continual basis during the complete disassembly and removal operations.

Damage

Any damage not recorded before disassembly and removal or arising from disassembly and agreed with the Architect as unavoidable, shall be the responsibility of the contractor. He will be required to repair the damage at his own expense or to reimburse the Architect for the

cost of such repairs by means of deductions from any payments made by the Architect to the contractor.

Repairs

When all of the components are ready for inspection, the Contractor shall, in conjunction with the Architect. He shall prepare all necessary full sized details to illustrate each and every type of repair and agree the details with the Architect before commencing the repair operations. All repairs shall be executed as specified later in this document. The Contractor shall note that existing repairs shall be undone and remade if the standard is not acceptable or may be left if the standard is acceptable. The repaired work shall be finished to match the original.. All softwood originally intended to be unfinished shall remain unfinished. All moving or movable parts shall be checked and repaired as necessary to ensure proper operation.

Reinstatement

Reinstatement shall be undertaken in the reverse order of removal. Great care shall be taken to ensure that each item and component is reinstated in its original location. Any damage caused by the reinstatement shall be made good or replaced at the Contractor's expense to the Architect's satisfaction. Any damage to the finishes shall be repaired in such a manner that the repair is not visible.

1.3. General Conservation Methodology

1.3.1. Protection Of Existing Structures And Materials

The Contractor shall ensure that no damage occurs to the Existing Structures as a result of the execution of the Works.

1.3.2. Protection Method Statement

The Contractor shall prepare a site specific method statement detailing the proposed protection measures to be implemented in respect of the Existing Structures. This shall include, as a minimum, details of the following:

- Measures to ensure protection of the existing roof structure and materials during the course of the Works;
- Measures to ensure protection of existing building fabric, both external and internal, during the course of the Works;
- Measures to prevent water ingress during execution of the Works;
- Proposed method of access to roof Areas – both during the Construction Period and Service Period;
- Measures to ensure the stability and protection of Existing Structures during repair and replacement works to the structural fabric of the Existing Structures; and
- Details of other measures required to address Site specific issues.

The Conservation Architect shall review all such method statements for compliance with conservation best practice.

1.3.3. Protection And Storage

The Contractor shall ensure that retained floors along the main construction route must be protected.

Storage of builder's equipment and materials must be in designated compound Area/s. While works are underway, equipment and materials being transported around the Project Facility, temporarily stored and used, must be carefully positioned so that retained historic fabric and surfaces are not damaged.

1.3.4. Movement Of Equipment And Material

Transport & erection of scaffolding poles / planks pose a particular threat to fabric. These and all long items such as floor boards must be carried by minimum of two operatives at all times to ensure no damage and impact to fabric.

Loading

Positioning of any removed or stored materials shall not overload the existing structure.

Fixing to Historical Fabric

Scaffolding and working platforms must be independently supported and may not be fixed to the Existing Structures. Full plywood protections must be provided between scaffolding supports and retained historic flooring / paving of Existing Structures.

Specialist Contractors

The Contractor shall ensure that all parties engaged to undertake works to Existing Structures are competent to undertake the elements for which they are engaged. Contractors must have the relevant training and experience to carry out specialist works within historic buildings.

1.3.5. Works Methodology

The Contractor shall prepare a Site specific method statement detailing the proposed methodology and sequencing to be implemented in respect of the retained fabric of the Existing Structures.

The methodology shall also describe how mitigation measures set out in the conservation impact assessments forming part of the Planning Decision are complied with.

1.3.6. Recording

The Contractor shall clearly and comprehensively record all Areas opened up within Existing Structures through the use of good digital photographs (minimum 10.1MP). Photographs shall record all principle features uncovered including architectural and structural elements, service routes, chases, floor voids and areas that will be closed up. As-built record drawings are to be provided to the Authority at the completion of the works including with referenced digital photographs.

1.4. Schedule of Features and Fabric to be Salvaged

The following is an outline of the items to be salvaged. Please refer to the photos identifying the items below, Section 5 of the Conservation report, and the accompanying Architects' Drawings and Industrial Archaeology Report.

It is proposed to salvage fabric and features of architectural heritage interest within the site. Where possible, these will be re-used within the proposed development. Where there reuse within the proposed development is not feasible, the fabric and features will be salvaged off-site.

The items for salvage are as follows:

1. Intact historic brickwork from the areas of the building to be demolished, which is suitable for re-use.
2. A section of the roof structure to the internal courtyard of Block A will be salvaged, repaired and reinstated.
3. Original front entrance door.
4. Historic timber balustrade to the front staircase, where sections of the staircase are to be demolished (Room G.26).
5. Intact historic internal joinery which is suitable for re-use, including doors, architraves, skirting and timber panelling etc.
6. Historic steel industrial doors, internally and externally.
7. Historic steel multi-pane windows (see separate Window Schedule for further detail).
8. Historic cast-iron rainwater goods throughout, including hoppers, downpipes, brackets and straps.
9. Historic wrought-iron railings and gates to the South Circular Road.
10. Intact historic cast-iron radiators which are suitable for re-use.
11. Historic decorative cast-metal covers for service boxes.
12. Historic timber storage units (Room G.5).



Figure 1: View of the historic brickwork to Factory No. 1, to be demolished as part of the proposed redevelopment.



Figure 2: Front entrance door to Factory No. 2 from South Circular Road



Figure 3: View of the timber staircase and balustrade to the main staircase in Room G.26 of Factory No. 2.



Figure 4: View of internal joinery elements within the front three bays of factory No. 2, including architraves, skirtings and timber panelling.



Figure 5: Sliding industrial steel door in Room G.11.



Figure 6: Original steel multi-pane window.



Figure 7: Cast-iron hopper, downpipe and straps.

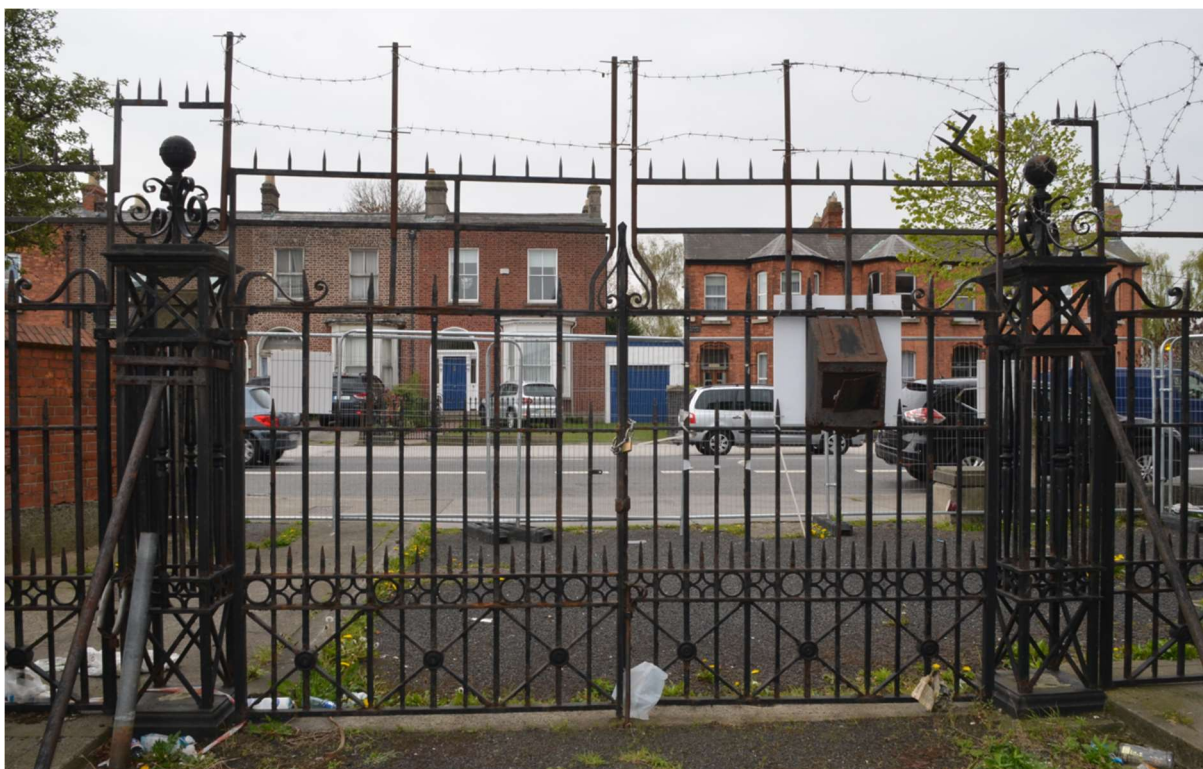


Figure 8: Wrought-iron gates and gate-posts to the South Circular Road.



Figure 9: Cast-iron radiator.



Figure 10: Decorative cast-metal cover to services box.



Figure 11: Timber cubby-hole storage in Room G5.

Section 2 Specifications

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2.1. Taking Down And Removals.

2.1.1. Taking Down And Removals.

Code of Practice

The works shall comply with the requirements of B.S. 6187.

Taking Down Works

The works may be undertaken by the Main Contractor provided he can demonstrate that the workforce employed on the site has the skill and experience to complete the works without damage to the adjoining structures retained or a specialist approved by the Architect and/or Engineer.

No portion of the works shall be sub-let without the prior written approval of the Architect.

Should approval to sub-let be given it will not relieve the Contractor of his responsibility under this contract and any sub-contractor must accept fully the conditions of contract and work in accordance with the Specification. Furthermore, the Architect shall be empowered to instruct the sub-contractor who will in turn carry out such instructions as if he were the Contractor.

Nature of Site

The Contractor is specifically informed of the restricted and confined nature of the site, the proximity of other buildings and the special nature of the adjacent buildings. All reasonable measures shall be taken to ensure the minimum disruption to all of these and to the need for express specific consent regarding any proposed works within adjoining sites (or buildings).

All plant and equipment to be used in taking down shall be appropriate to the confined location and the sensitive nature of the works.

The Contractor is specifically informed of the historical nature of the site and will be obliged to report any finding which may be of historical interest to the Architect and Structural Engineer and shall await inspection by Archaeologist to assess the significance of any such finding prior to removal or further disturbance of same. In addition, the Contractor shall note that any works which would disturb the ground or other archaeological strata will be the subject of constant inspection by an Archaeologist appointed by the Employer. The Contractor will be required to co-operate with the Archaeologist and to suspend or re-programme the order of the works to facilitate archaeological investigation that may be deemed necessary by the Archaeologist. The Contractor will be deemed to have taken all the matters into account at the time of tender and no extras will be allowed for his failure to do so.

Superintendence

The Contractor shall give all necessary personal superintendence during the execution of the works and keep constantly thereon a competent general foreman with power to act in the Contractor's absence and for all purposes as his general agent.

Survey

Before starting work, the Contractor shall examine all available information, and shall carry out a survey of the structure(s), site and surrounding area and submit a survey report and method statement to the Architect and Structural Engineer covering all relevant matters listed

below and set out in the relevant Health and Safety Authority Guidance Notes and the relevant clauses of B.S. 6187:

The form, condition and removal methods of the structures.

The form, location and removal methods of any toxic or hazardous materials.

The type and location of adjoining or surrounding premises which may be adversely affected by noise, vibration, dust or removal of structure.

The identification and location of services above and below ground.

Investigate risks

In accordance with BS 6187, clause 4, the Contractor shall investigate the features of the structure to determine if shock of vibration could damage the buildings being retained, surrounding building, equipment contained in the buildings, buried services and check for the existence of toxic or flammable substances or asbestos. In addition, the Contractor shall decide which portions of the existing structures need to be secured.

Bench Marks

Report to the Architect any bench marks and other survey information found on structure(s) to be taken down. Do not remove or destroy unless specifically instructed.

Feature(s) to be retained

All structure, components and features not specifically identified for removal are to be kept in place and adequately protected.

Insurance

As provided in the contract under insurance clauses, the Contractor shall prior to commencement of the works obtain the Employer's approval for all insurances. Such insurances shall indemnify the Employer against all claims arising out of:

- (1) Collapse, subsidence, vibration or weakening of supports.
- (2) Liability assumed under the Contract.
- (3) Use of mobile or lifting plant.
- (4) Claims for consequential damage and consequent loss
- (5) Fire.
- (6) Public and Employers Liability Insurances against injury to persons and property as required by the contract.
- (7) All Risks Insurance in the joint names of the Employer and the Contractor for the full value of the works and ancillary items required by the contract.

- (8) Collapse, subsidence, vibration or weakening of supports not arising out of the negligence of the Contractor.

Service Regulations

Any work carried out to or which affects new or existing services must be in accordance with the bylaws or regulations of the relevant statutory authority.

Location of Services

The Contractor is specifically informed that live services cross the site and in its vicinity, and he shall ensure that these are investigated, located and adequately protected during the course of the work. Locate and mark the positions of services affected by the work. Arrange with the appropriate authorities for the location and marking of the positions of the mains services.

Existing Services

Disconnect and remove existing services made redundant by the works. Carefully protect all services to be re-used. All structure, components and features not specifically identified for removal are to be kept in place and adequately protected.

Drains in Use

Protect rainwater pipes, hopper heads, vent pipes and fittings still in use and ensure that they are kept free of debris at all times. Make good any damage arising from demolition works and leave clean and in working order at completion.

Old Materials

In general, old materials removed by the works shall become the property of the Contractor, who will allow credits for any salvage value against the costs of the works. However, materials such as stone, slate etc. which are to be salvaged for re-use shall remain the property of the Employer and shall be sorted and set aside for re-use as specified later. In addition, items of finishes, such as the various joinery elements, access hatches, doors and surrounds etc. shall be carefully removed where necessary, protected as necessary to ensure no damage occurs, and set aside for re-use.

Any coins, fossils, curiosities, money or articles having a monetary or intrinsic value (including historic, artistic or other values) other than ordinary building materials shall become the property of the Employer and must be handed over to the Employer.

Materials to be Salvaged for Re-use

All existing masonry, slate, joinery elements, etc., to be removed and to be retained for re-use shall be carefully removed by hand in such a manner that no damage is occasioned to the components being removed. Under the direction of the Architect, the removed materials shall be carefully sorted by and the material for re-use shall be carefully placed on pallets. These materials shall be carefully cleaned to remove old mortar, plaster, render etc. at the time of sorting so that minimal works are necessary during re-building operations. No material shall be disposed of until such time as its disposal is approved by the Architect and, if required, the Contractor will be required to repeat the sorting operation should any material suitable for re-use be discovered in the materials designated for disposal. The pallets shall be located close to the works so that handling and transport is kept to a minimum and the sorting, cleaning and rebuilding operations minimise any further damage during transport or other re-location of the materials. Samples of the original mortars, renders and plasters shall be retained for analysis. The Contractor shall

arrange for samples designated by the Architect to be forwarded to an approved laboratory for analysis of all properties including shape, sizes, texture, grading and binder type and proportion which will be used to replicate the original mixes.

All material unsuitable for re-use shall be retained on site until its removal is approved by the Architect. Once this approval is given, it shall be immediately removed from the site. Similarly, any material found unsuitable during the rebuilding operations shall be piled according to type and only removed when the Architects has given his approval.

Taking Down Methods

The Contractor shall only employ such methods that cause no shock or vibration to adjacent buildings and equipment or buried services being retained. In general, sections being taken down should be disconnected from sections being retained by hand methods before any removal is undertaken in order to prevent any accidental damage to the fabric or structure retained. The use of explosives is forbidden.

The Contractor should note the particular difficulties in connection with the taking down works and make his own assessment as to the most appropriate methods to be used at the time of tender. He should note that it may be necessary to undertake the removal works in part or in total by hand demolition.

Where necessary, leave adequate temporary support and protection at each stage and arrange for inspection by the Architect. Maintain and alter temporary supports and protection as necessary as work progresses.

Arrange inspection and approval of a suitably qualified where any works will involve Mechanical and/or Electrical services.

Take down structure(s) causing a minimum of damage to adjacent property and leave no unnecessary or unstable projections.

Report to the Architect any defects exposed or becoming apparent in adjoining property.

Promptly repair any damage caused to adjoining property by demolition work. Make good to ensure safety, stability, weather protection and security.

Structure(s) to be retained

Adequately protect parts of existing structure(s) which are to be kept in place

Cut away and strip out the minimum necessary and with care to reduce the amount of making good to a minimum.

Prevent debris from overloading any part of the structure which is not to be taken down.

Services which are to remain

Notify the Architect and service authority of any damage. Make all arrangements for repair to the satisfaction of the Architect and service authority. Bear any costs arising.

Method Statement

The Contractor will be required to prepare a method statement detailing the precise details of his proposals for the demolition works and submit same to the Architect for this approval before the work is put in hands. He will be required to modify the method statement as necessary until such approvals are obtained. Such approvals, once given by the Architect shall not relieve the Contractor of any responsibility for any aspect of the taking down works including safety, preventing damage to fabric retained, preventing damage to materials to be salvaged for re-use etc. etc..

Schedules of Works and Programme.

The Contractor shall submit to the Architect:

- (a) A Schedule of his intended working procedures and taking down works for approval.
- (b) An itemised programme chart. This shall be kept continuously up to date during the progress of the works.

The Contractor shall include for the erection of shores and ties where required. He shall satisfy himself that the proposals are adequate, and shall include for, and put forward his alternative proposals if he feels they are not. Drawings and details of such alternative proposals shall be submitted for comment by the Architect in advance.

All propping, needling and shoring required shall be designed, erected (and, where applicable, removed) in accordance with latest codes of practice

No approval issued by the Architect shall relieve the Contractor of his responsibility for the safety of the general public, site personnel and adjoining properties during the course of the demolition works.

Safety Precautions

Take all safety precautions necessary, including those noted in BS 6187, Clause 5, and relevant Health and Safety Authority Guide Notes. Site staff responsible for supervision and control of the work are to be experienced in the assessment of the risks involved and in the methods of taking down to be used.

Taking down in confined areas and adjacent to structure and fabric to be retained shall be carried out by hand. On no account shall the buildings, scaffolding etc., become overloaded by debris etc. The site shall be kept secure at all times.

General Precautions to Avoid Damage

The Contractor shall carry out the work in such manner as to cause as little inconvenience as possible to the owners and/or occupants of the adjoining premises or the public and shall include in his tender for any costs such as the provision of water for sprinkling the debris to keep down dust. In particular, noise and vibration shall be kept to a minimum, and the Contractor shall take all necessary steps to abate these to avoid inconvenience to others.

The Contractor shall protect adjoining properties roads and footpaths from damage and provide adequate support to them at each stage of taking down, and adapt and re-arrange such support as necessary from time to time. He shall provide all necessary temporary shorings, screens and coverings.

The Contractor shall make good at his own expense any damage done to public roads and footpaths which may be caused by his operations.

The Contractor shall provide all necessary watching and lighting including lights on hoardings or scaffoldings projecting over public footpaths during the progress of the works and shall be responsible for any damage arising from insufficient watching or lighting.

Temporary Supports

The Contractor shall be responsible for the design and provision of all necessary temporary supports, needling, shoring, raking shoring, horsing etc.

Nuisance

The Contractor shall be responsible for the prevention of all nuisance arising from the works, in particular, noise, dust etc. To this end, all dry material shall be periodically dampened to prevent dust rising and no debris shall be allowed to be deposited on the public roadway or adjoining building either during the works and transport of debris from the site.

Health Hazard

Take adequate precautions to protect site operatives and the general public from health hazards associated with dangerous fumes and dust arising during the course of the works.

Debris.

All debris, demolished materials etc., shall be removed from the site and deposited in an approved site provided by the Contractor.

Burning Material

On no account will the burning of material be permitted on site,

Gas or Vapour Risks

Take adequate precautions to prevent **fire** or explosion caused by gas or vapour.

Decayed Timber

All decayed or infested timber shall be carefully removed to prevent the spread of spores or larvae, immediately wrapped before removal from the building and disposed off site. Similarly, other materials adjoining the site of such decayed timber shall, if necessary, be carefully removed and disposed off site or treated with an approved chemical to prevent contamination spreading to adjoining retained structures.

Adjacent Structures

Areas for taking down shall be disconnected from areas being retained by hand by means least Rely to cause damage to the retained structures and approved by the Architect. All unnecessary projections shall be removed.

Make Good

The Contractor shall make good as required to ensure safety stability and security of the retained buildings and provide such weather protection to the retained structures as may be necessary.

Protection

Provide all necessary protection as required under BS 6187, Clause 5. In addition, the Contractor shall provide all necessary temporary screens etc., as required for safety, control of noise and dust, temporary weather protection, security etc., or to facilitate the works.

Partly Demolished Structure(s)

Leave partly demolished structure in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse.

Prevent debris from overloading scaffolding platforms.

Prevent access of unauthorised persons to partly demolished structure(s). Leave safe outside working hours.

Asbestos based Materials

Report immediately to the Architect any suspected asbestos based materials discovered during taking down work. Avoid disturbing such materials. Agree with the Architect / Engineer methods for safe removal.

Unknown Hazards

Inform the Architect of any unrecorded voids, tanks, chemicals, etc., discovered during taking down work. Agree with the Architect and Engineer, methods for safe removal, filling, etc.

Completion

Clear away all debris and leave the site in a tidy and safe condition on completion.

APPENDIX 14.9

BUILT HERITAGE: BLOCK A WINDOWS SCHEDULE OF WORKS & KEY ELEVATIONS

VOLUME III

APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020



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Schedule of Works to Windows at Block A, the former Player Wills Factory, South Circular Road, Dublin 8.

It appears that approximately 1/3 of the existing windows in the No. 2 Factory (referred to as Block A in the accompanying Conservation Report) are original. The surviving original windows do not meet the Part L requirements regarding thermal and sound insulation for the proposed new uses of the of the building. It is proposed that all original multi-pane steel windows will be salvaged from the building.

New thermally broken multi-pane steel windows to match the original pane configuration and profile will be inserted to replace the original windows, and to replace later windows throughout the building, as per the drawings prepared by Henry J Lyons Architects. All works will be carried out in accordance with the accompanying Outline Conservation Specification.

The following document should be read alongside the associated Key Elevations, appended below, which identify the windows at each level of the existing Block A Factory building. Photographs of the elevations are included in the main Photographic Record.

Ground Floor Level

South Elevation

WG.01	Non-original	Plinth to be removed and new multi-pane steel window to match the original profile and pane configuration to be inserted into the new opes.
WG.02	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.03	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.04	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.05	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.06	Original	Existing window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.07	Parts are original	Original sections of window are to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.08	Parts are original	Original sections of window are to be salvaged. The plinth is to be removed, and new multi-pane steel windows to match

David Slattery – Conservation Architects Ltd.

James Slattery B.Arch., Dipl. ABRCons M.R.I.A.I. – Principal / Director

		the original profile and pane configuration inserted into the new opes.
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East Elevation

WG.09	Original	Original window to be salvaged. The plinth is to be removed, and new multi-pane steel windows to match the original profile and pane configuration to be inserted into the new opes.
WG.10	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.11	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.12	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.13	Parts are original	Original sections to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.14	Original	Original window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.15	Original	Original window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.16	Original	Original window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.17	Original	Original window to be salvaged. Plinth to be removed and a new full-height ope formed here.
WG.18	Original	Original window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.19	Original	Original window to be salvaged. New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.20	Non-original	New multi-pane steel window to match the original profile and pane configuration to be inserted here.
WG.21	Non-original	To be demolished.
WG.22	Non-original	To be demolished.
WG.23	Non-original	To be demolished.

North Elevation

WG.24	Non-original	Non-original window and sections of wall to be removed to form large new ope.
WG.25	Non-original	Non-original window and sections of wall to be removed to form large new ope.
WG.26	Non-original	Non-original window and sections of wall to be removed to form large new ope.

West Elevation

WG.27	Non-original	Non-original window and sections of wall to be removed to form large new ope.
WG.28	Non-original	Non-original window and sections of wall to be removed to form large new ope.
WG.29	Non-original	Non-original window and sections of wall to be removed to form large new ope.
WG.30	Original	Original window to be salvaged. Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.31	Original	Original window to be salvaged. Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.32	Original	Original window to be salvaged. Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.33	Non-original	Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.34	Original	Original window to be salvaged. Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.35	Original	Original window to be salvaged. Plinth to be removed and new full-height multi-pane steel windows to match the original profile and pane configuration to be inserted here.
WG.36	Original	Original window to be salvaged. Plinth to be removed and new full-height windows to be inserted.
WG.37	Non-original	Plinth to be removed and new full-height windows to be inserted.
WG.38	Non-original	Plinth to be removed and new full-height windows to be inserted.

First Floor Level

South Elevation

WF.01	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.02	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.03	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.04	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.05	Non-original	New single-pane window to be inserted here
WF.06	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.07	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.

WF.08	Original	Original window to be salvaged. New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.09	Original	Original window to be salvaged. New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.

East Elevation

WF.10	Parts are original	Original sections to be salvaged. New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.11	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.12	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WF.13	Non-original	Existing window to be removed and replaced with modern steel window.
WF.14	Non-original	Existing window to be removed and replaced with modern steel window.
WF.15	Non-original	Existing window to be removed and replaced with modern steel window.
WF.16	Non-original	Existing window to be removed and replaced with modern steel window.
WF.17	Non-original	Existing window to be removed and replaced with modern steel window.
WF.18	Non-original	Existing window to be removed and replaced with modern steel window.
WF.18	Non-original	Existing window to be removed and replaced with modern steel window.
WF.19	Non-original	Existing window to be removed and replaced with modern steel window.
WF.20	Non-original	Existing window to be removed and replaced with modern steel window.
WF.21	Non-original	Existing window to be removed and replaced with modern steel window.
WF.22	Non-original	To be demolished.
WF.23	Non-original	To be demolished.
WF.24	Non-original	To be demolished.

North Elevation

WF.25	Non-original	To be demolished.
WF.26	Non-original	To be demolished.
WF.27	Non-original	To be demolished.
WF.28	Non-original	To be demolished.
WF.29	Non-original	To be demolished.
WF.30	Non-original	Existing window to be removed and replaced with modern steel window.

WF.31	Non-original	Existing window to be removed and replaced with modern steel window.
WF.32	Non-original	Existing window to be removed and replaced with modern steel window.

West Elevation

WF.33	Non-original	To be demolished.
WF.34	Non-original	To be demolished.
WF.35	Non-original	To be demolished.
WF.36	Non-original	Existing window to be removed and replaced with modern steel window.
WF.37	Non-original	Existing window to be removed and replaced with modern steel window.
WF.38	Non-original	Existing window to be removed and replaced with modern steel window.
WF.39	Non-original	Existing window to be removed and replaced with modern steel window.
WF.40	Non-original	Existing window to be removed and replaced with modern steel window.
WF.41	Non-original	Existing window to be removed and replaced with modern steel window.
WF.42	Non-original	Existing window to be removed and replaced with modern steel window.
WF.43	Non-original	Existing window to be removed and replaced with modern steel window.
WF.44	Non-original	Existing window to be removed and replaced with modern steel window.
WF.45	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WF.46	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WF.47	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.

Courtyard – South Elevation

WF.48	Non-original	Existing window to be removed and replaced with modern steel window.
WF.49	Non-original	Existing window to be removed and replaced with modern steel window.
WF.50	Non-original	Existing window to be removed and replaced with modern steel window.

Courtyard – East Elevation

WF.51	Non-original	Existing window to be removed and replaced with modern steel window.
WF.52	Non-original	Existing window to be removed and replaced with modern steel window.

WF.53	Non-original	Existing window to be removed and replaced with modern steel window.
WF.54	Non-original	Existing window to be removed and replaced with modern steel window.
WF.55	Non-original	Existing window to be removed and replaced with modern steel window.
WF.56	Non-original	Existing window to be removed and replaced with modern steel window.

Courtyard – North Elevation

WF.57	Original	Original window to be salvaged. This area of the building will be demolished.
WF.58	Original	Original window to be salvaged. This area of the building will be demolished.
WF.59	Original	Original window to be salvaged. This area of the building will be demolished.

Courtyard – West Elevation

WF.60	Non-original	Existing window to be removed and replaced with modern steel window.
WF.61	Non-original	Existing window to be removed and replaced with modern steel window.
WF.62	Non-original	Existing window to be removed and replaced with modern steel window.
WF.63	Non-original	Existing window to be removed and replaced with modern steel window.
WF.64	Non-original	Existing window to be removed and replaced with modern steel window.
WF.65	Non-original	Existing window to be removed and replaced with modern steel window.

Second Floor Level

The second floor is a c. 1930s extension to the original two-storey building. As it was constructed shortly after the original structure, with matching details, 1930s windows in this section will be considered as original fabric throughout.

South Elevation

WS.01	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.02	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.03	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.04	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.

WS.05	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.06	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.07	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.08	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.09	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.

East Elevation

WS.10	Parts are original	Original sections to be salvaged. New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.11	Original	Existing window to be salvaged. New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here
WS.12	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be inserted here.
WS.13	Non-original	Existing window to be removed and replaced with modern steel window.
WS.14	Non-original	Existing window to be removed and replaced with modern steel window.
WS.15	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.16	Non-original	Existing window to be removed and replaced with modern steel window.
WS.17	Non-original	Existing window to be removed and replaced with modern steel window.
WS.18	Non-original	Existing window to be removed and replaced with modern steel window.
WS.19	Non-original	Existing window to be removed and replaced with modern steel window.
WS.20	Non-original	Existing window to be removed and replaced with modern steel window.
WS.21	Non-original	Existing window to be removed and replaced with modern steel window.
WS.22	Non-original	Existing window to be removed and replaced with modern steel window.
WS.23	Non-original	To be demolished.
WS.24	Non-original	To be demolished.
WS.25	Non-original	To be demolished.

North Elevation

WS.26	Non-original	To be demolished.
WS.27	Non-original	To be demolished.
WS.28	Non-original	To be demolished.

WS.29	Non-original	To be demolished.
WS.30	Non-original	To be demolished.
WS.31	Non-original	Existing window to be removed and replaced with modern steel window.
WS.32	Non-original	Existing window to be removed and replaced with modern steel window.
WS.33	Non-original	Existing window to be removed and replaced with modern steel window.

West Elevation

WS.34	Non-original	To be demolished.
WS.35	Non-original	To be demolished.
WS.36	Non-original	To be demolished.
WS.37	Non-original	Existing window to be removed and replaced with modern steel window.
WS.38	Non-original	Existing window to be removed and replaced with modern steel window.
WS.39	Non-original	Existing window to be removed and replaced with modern steel window.
WS.40	Non-original	Existing window to be removed and replaced with modern steel window.
WS.41	Non-original	Existing window to be removed and replaced with modern steel window.
WS.42	Non-original	Existing window to be removed and replaced with modern steel window.
WS.43	Non-original	Existing window to be removed and replaced with modern steel window.
WS.44	Non-original	Existing window to be removed and replaced with modern steel window.
WS.45	Non-original	Existing window to be removed and replaced with modern steel window.
WS.46	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.
WS.47	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.48	Non-original	New thermally broken multi-pane steel window to match original profile and pane configuration to be reinstated here.

Courtyard – South Elevation

WS.49	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.50	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.51	Original	Existing window to be salvaged. New modern steel window to be inserted here.

Courtyard – East Elevation

WS.52	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.53	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.54	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.55	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.56	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.57	Original	Existing window to be salvaged. New modern steel window to be inserted here.

Courtyard – North Elevation

WS.58	Original	Existing window to be salvaged. This area of the building to be demolished.
WS.59	Original	Existing window to be salvaged. This area of the building to be demolished.
WS.60	Original	Existing window to be salvaged. This area of the building to be demolished.

Courtyard – West Elevation

WS.60	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.61	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.62	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.63	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.64	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.65	Original	Existing window to be salvaged. New modern steel window to be inserted here.
WS.66	Original	Existing window to be salvaged. New modern steel window to be inserted here.

Third Floor Level

South Elevation

WT.01	Non-original	To be demolished
WT.02	Non-original	To be demolished

East Elevation

WT.03	Non-original	To be demolished
WT.04	Non-original	To be demolished
WT.05	Non-original	To be demolished
WT.06	Non-original	To be demolished
WT.07	Non-original	To be demolished
WT.08	Non-original	To be demolished
WT.09	Non-original	To be demolished
WT.10	Non-original	To be demolished
WT.11	Non-original	To be demolished

North Elevation

WT.12	Non-original	To be demolished
WT.13	Non-original	To be demolished
WT.14	Non-original	To be demolished
WT.15	Non-original	To be demolished
WT.16	Non-original	To be demolished
WT.17	Non-original	To be demolished

West Elevation

WT.18	Non-original	To be demolished
WT.19	Non-original	To be demolished
WT.20	Non-original	To be demolished

Courtyard – East Elevation

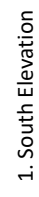
WT.21	Non-original	To be demolished
WT.22	Non-original	To be demolished
WT.23	Non-original	To be demolished
WT.24	Non-original	To be demolished
WT.25	Non-original	To be demolished
WT.26	Non-original	To be demolished

Courtyard – North Elevation

WT.27	Non-original	To be demolished
WT.28	Non-original	To be demolished

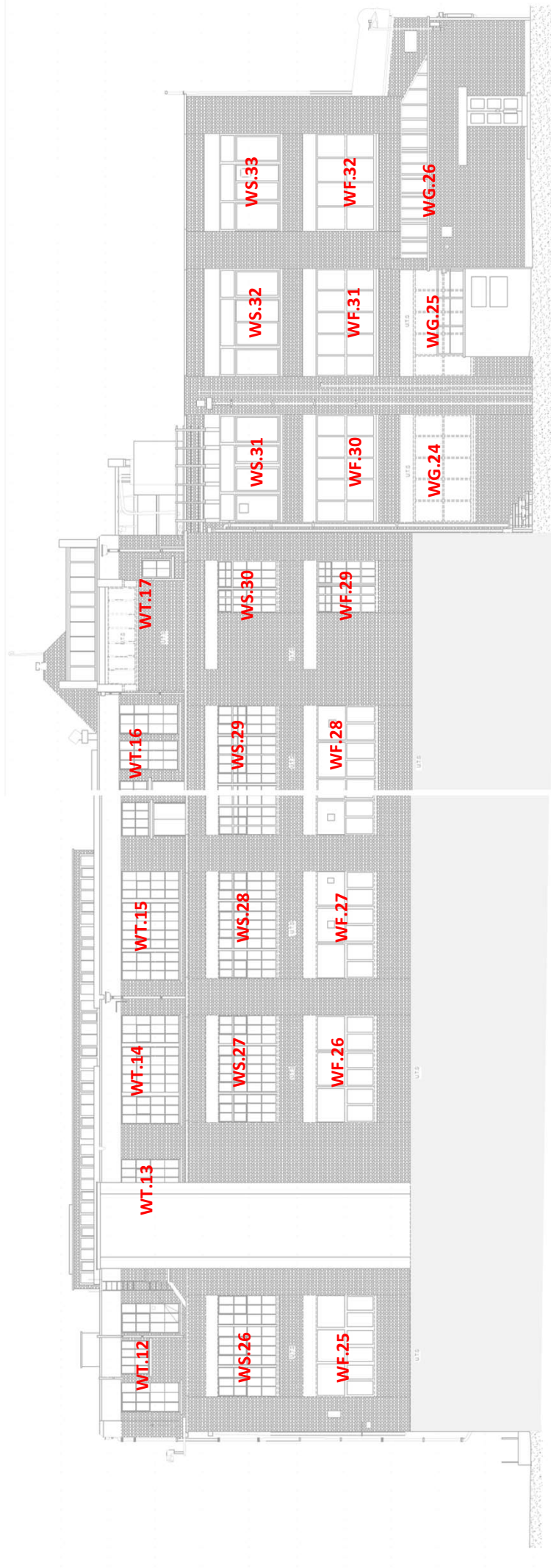
Player Wills Factory, South Circular Road, Dublin 8.

Windows to Block A – Key Elevations

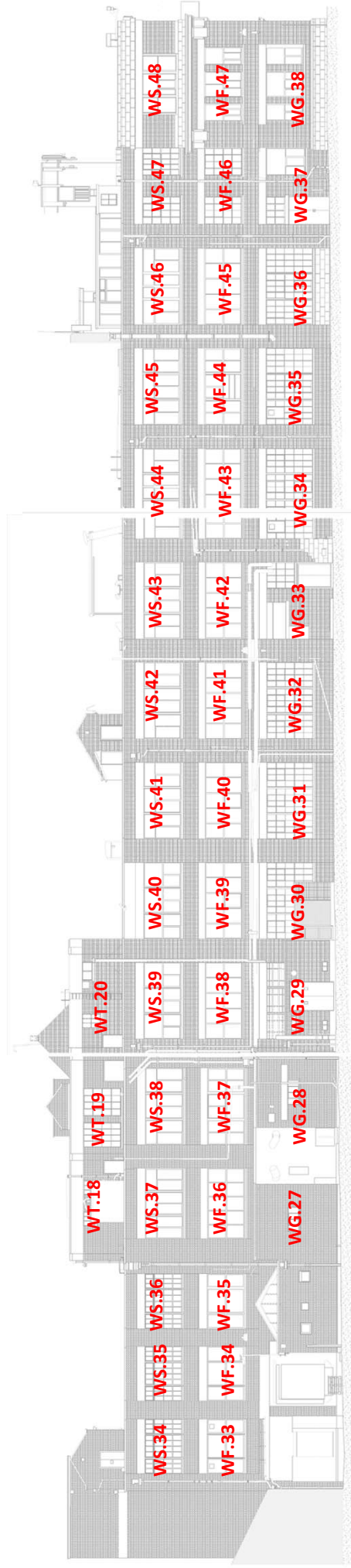




2. East Elevation



3. North Elevation



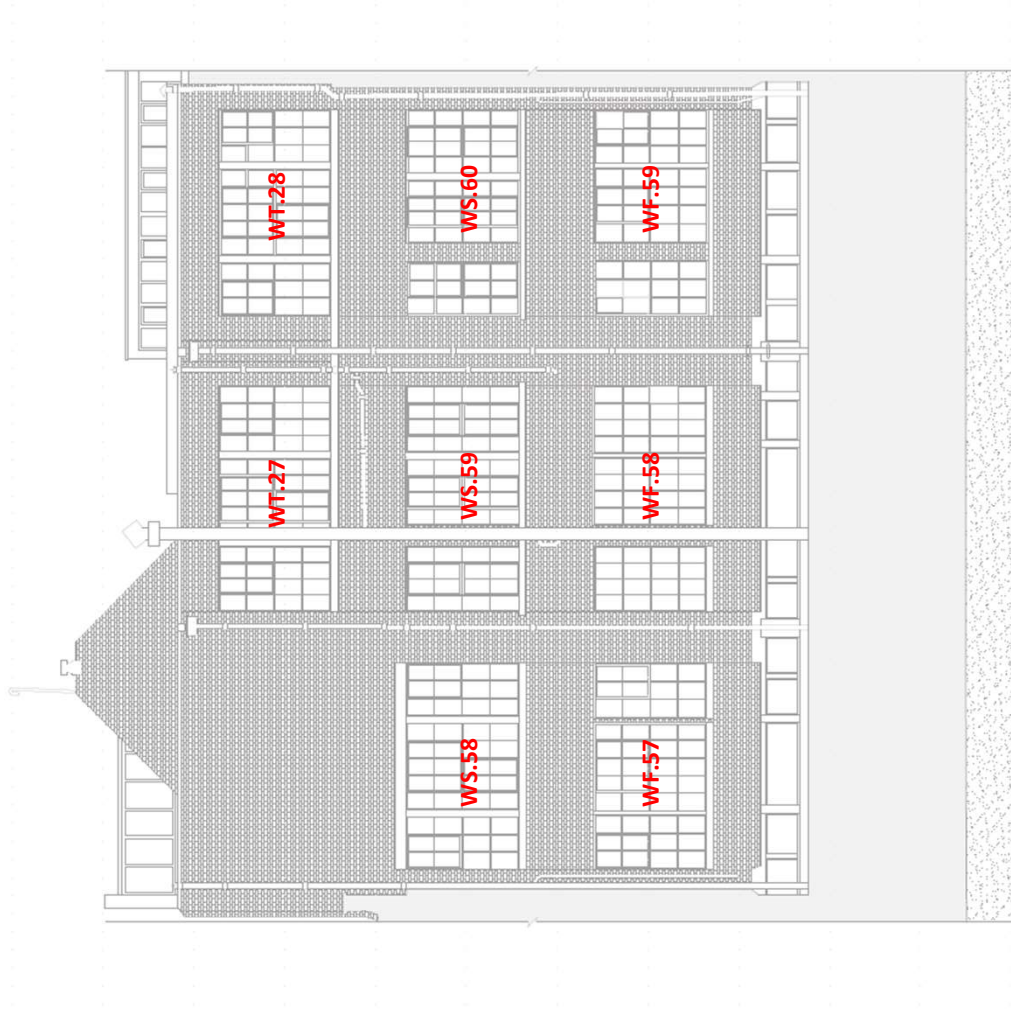
4. West Elevation



5. Courtyard - South Elevation



6. Courtyard – East Elevation



7. Courtyard - North Elevation



8. Courtyard – West Elevation

APPENDIX 14.10

BUILT HERITAGE: INDUSTRIAL HERITAGE ASSESSMENT, IAC ARCHAEOLOGY

VOLUME III
APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

**INDUSTRIAL HERITAGE ASSESSMENT
AT THE
PLAYERS-WILLS FACTORY,
SOUTH CIRCULAR ROAD,
DUBLIN 8**

**ON BEHALF OF: CWTC MULTI FAMILY ICAV ACTING
SOLELY IN RESPECT OF
ITS SUB FUND DBTR SCR 1 FUND**

AUTHOR: ROB GOODBODY

JULY 2019

ABSTRACT

Irish Archaeological Consultancy Ltd has prepared this report on behalf of CWTC Multi Family ICAV acting solely in respect of its sub fund DBTR SCR 1 Fund to ascertain what elements of industrial heritage significance may be salvaged from the Players-Wills building at South Circular Road, Dublin (OS Dublin Sheet 18). The report was undertaken by Rob Goodbody of IAC Ltd.

The report finds that there is great deal of equipment, fittings, fixtures and services on the site that has no industrial heritage significance and that need not be salvaged.

There are elements on the site that are worthy of being salvaged for reuse and this includes cast-iron rainwater goods, radiators and wrought-iron gates.

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Figure 1: Location of proposed development**Error! Bookmark not defined.**

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1 INTRODUCTION

1.1 GENERAL

This report has been prepared in response to a request for an assessment of the industrial heritage of the Players-Wills site on South Circular Road, Dublin 8 (Figure 1). In particular, the report is intended to identify what industrial heritage elements are of such significance that their retention may be required.

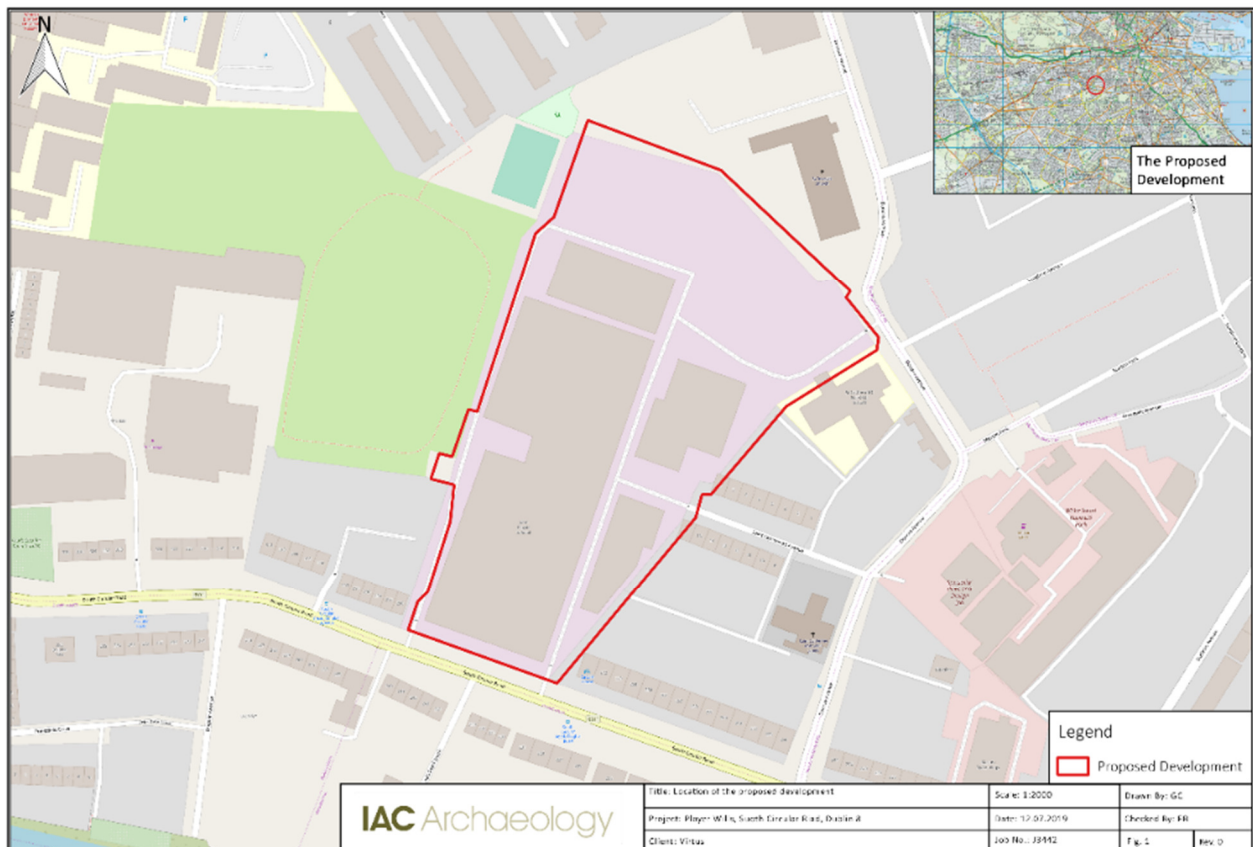


Figure 1: Location of proposed development

1.2 THE DEVELOPMENT

It is proposed to develop the former Players-Wills site that will include the demolition of the buildings on the site with the exception of the front section of the former cigarette factory.

1.3 PLANNING HISTORY

A planning application was submitted in 2006 seeking permission for the development of the combined Players-Wills and Bailey Gibson sites (planning authority reference 3130/06). A decision to grant issued from Dublin City Council and following an appeal to An Bord Pleanála permission was granted in April 2008 (An Bord Pleanála reference PL.29S.221190). The development then proposed included the demolition of all buildings on the sites, though the permission as granted following the appeal included

a condition that the front section of the former cigarette factory be retained, extending back three bays from the frontage.

A search of the Dublin City Council planning website has revealed that there is no copy of the planner's report or the decision notice, though the individual conditions attached to the decision to grant are available. An environmental impact assessment report was submitted with the application, though most of it is not available on the website. One section that has been made available includes the archaeology and cultural heritage report and the non-technical summary is also available. From examination of those documents it seems that no architectural heritage assessment of the buildings was submitted.

The direction of the board and the order issued by Bord Pleanála are available on that authority's website, though the inspector's report is not available – though these reports are normally made available through that website. It is clear from the direction and the decision that it had been the inspector's recommendation that permission be refused, though in the absence of the report it is not known what the reasons were for that recommendation.

In the absence of any report from the planning authority's planner or conservation officer or from the board's inspector it is difficult to be certain what was the thinking behind the decisions and whether any reference was made to architectural heritage or to the possibility of salvaging any materials or equipment. No condition requiring such salvage was included on the initial decision by the planning authority or in the final decision by the board, though both required a photographic survey of the cigarette factory to be made and lodged with An Bord Pleanála.

The planning permission granted in 2008 expired in 2013 without being implemented.

2 METHODOLOGY

Due to the presence of asbestos in the former cigarette factory no access to the interior of the building was possible for the writer of this report. However, a comprehensive set of 191 photographs taken by others was made available. A visit to the site was undertaken on 14th June 2019 to examine the exterior of the buildings and some interiors, where access was possible.

This report has been compiled from information gained on that visit and from inspection of the photographs of the interior of the former cigarette factory.

3 RESULTS OF FIELD INSPECTION AND ANALYSIS OF PHOTOGRAPHS

The former Players-Wills factory is located on the northern side of South Circular Road. It was built in 1935 for the tobacco company W D & H O Wills, which was part of the Imperial Tobacco Company. John Player and Son was also part of Imperial Tobacco and the two firms came to be known as Players-Wills, though the company trading in Ireland, as a subsidiary of Imperial Tobacco, as Player & Wills (Ireland) Limited. Production ceased at the site in 2005 as a result of rationalisation.

3.1 EXTERIOR

Brick

The original buildings on the site were constructed with yellow stock brick. Given the period of construction in the 1930s it is almost certain that the bricks were laid with a cement-based mortar and that salvage of the brick would be problematic as a result.

Stone

From a distance it appears that the public face of the building is adorned with cut limestone detailing (plate 1). However, on closer inspection this is seen to be reconstituted stone, or fair-faced concrete and this includes the plinth wall on the road frontage. Any of these elements that are to be removed from the building may have a salvage value, though they would probably not have any real potential for reuse unless a sufficient number of elements is removed to be reconstructed as a feature.

The window heads and sills are of concrete and not worthy of salvage.



Plate 1: Front doorway of cigarette factory

Condition 3(b) of the permission granted in 2008 by An Bord Pleanála required that the front façade of the cigarette factory be retained “except that a two-storey high opening shall be created through the central stone-faced section (approximately five metres wide). If such an opening is proposed in a new planning application it is recommended that the front doorway assemblage be salvaged.

Roofing

Some roofs have a slate covering, set on the diagonal. However, these are fibre-cement slates and are probably asbestos-based and of no salvage potential.

Rainwater goods

There are few gutters on the site, most of the roofs being drained through valley gutters or parapet gutters directly into hoppers and downpipes. The hoppers and downpipes and their brackets and straps are of good quality and should be salvaged for potential reuse on another site (plate 2).



Plate 2: Rainwater hopper, downpipe and strap



Plate 3: Gateway on street frontage

Gates and railings

On either side of the frontage to South Circular Road there are wrought-iron gates and railings (plate 3). These are of heritage significance and should be salvaged for reuse on another site if they are not to be retained on the present site, though the additions in steel at the top of the gates should be removed. The gateway to Donore Avenue is not of significance.

3.2 INTERIOR

The machinery has been removed from the building, probably at the time that the factory closed in 2005, as a rationalisation plan is likely to have included relocation of machinery to a site elsewhere. All that remains of large-scale machinery is a boiler, though this is not of particular heritage significance.

A large quantity of structural elements, furnishings and services remain inside the building. These include the following that are not of heritage significance:

- Boiler (plate 4)
- Steel roof trusses, steel beams and steel columns (plates 5 and 6)
- Steel windows and opening mechanisms (plate 7)
- Wrought-iron staircase railings (plate 8)
- Floor coverings
- Rising mains
- Brick chimneypiece (plate 9)
- Doors and door closers (plate 10)
- Kitchen equipment and canteen counters (plates 11 and 12)
- Storage pigeonholes (plate 13)
- Trunking, ducting and air handling (plate 15)
- Sprinkler systems (plate 14)
- Lighting (plate 15)
- Electric switch gear (plate 16)
- Space heating units (plate 14)
- Steel panelled radiators (plate 17)
- PA system (plate 14)

The following elements are of heritage significance and should be salvaged for reuse:

- Cast-iron radiators (plate 18)
- Timber balustrade on staircase at front, if not being retained in building (plate 19)

3.3 PHOTOGRAPHS: ITEMS NOT FOR SALVAGE



Plate 4: Boiler



Plate 5: Steel roof trusses



Plate 6: Steel beams and columns



Plate 7: Steel windows and opening mechanisms



Plate 8: Wrought-iron railings on staircase



Plate 9: Brick fireplace



Plate 10: Doors and door closers



Plate 11: Kitchen equipment



Plate 12: Kitchen equipment and counters



Plate 13: Storage pigeonholes



Plate 14: Space heating, PA system, sprinkler system and pipework

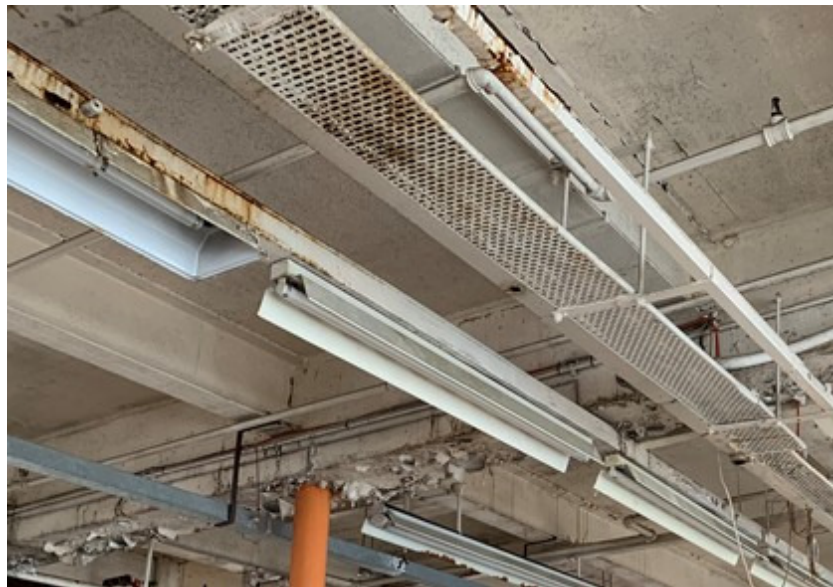


Plate 15: Lighting and trunking



Plate 16: Electrical equipment



Plate 17: Steel panelled radiator

3.4 PHOTOGRAPHS: ITEMS TO BE SALVAGED



Plate 18: Cast-iron radiator



Plate 19: Timber balustrade

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APPENDIX 14.11

BUILT HERITAGE: STRUCTURAL INVESTIGATION SUMMARY REPORT, BARRETT MAHONY

VOLUME III
APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT



DECEMBER 2020

STRUCTURAL SUMMARY REPORT

PROJECT NAME: Player Wills Factory, South Circular Road, Dublin 8
PROJECT NO: 19.117

SUBJECT: Investigations and Assessment of Existing Structure

TO: David Slattery Conservation Architects

PREPARED BY: Ciarán O'Rafferty / Conor Vaughan
DATE / REVISION: 28th August 2020 Rev.2
Page 1 of 6

1. INTRODUCTION

1.1 INTRODUCTION

Barrett Mahony Consulting Engineers, BMCE, has been engaged by DBTR-SCR1 Fund, a Sub-Fund of the CWTC Multi Family ICAV as project consulting structural and civil engineers for a proposed Mixed-Use development at the Players Wills site, South Circular Road, Dublin 8.

The proposed development is primarily a residential development, which covers the site of the existing 4 storey factory building and lands extending north to the boundary with St. Theresa's Church. This report focuses on the existing factory building, the majority of which is proposed to be retained and integrated into the new development.

1.2 EXISTING STRUCTURE

The factory building structure consists of a masonry clad steel frame with insitu concrete slabs. The building was constructed in a number of phases dating from 1924-1949. The original building was a two-storey structure, with an additional level constructed in stages between the 1920 and 1930s. The third storey maintains the structural grid of the levels below, with a reduction in the column sizes to that of the lower floors. Also in the late 1920's the building was extended to the north, with the internalization and removal of a significant portion of the original northern façade. The fourth storey, constructed in 1949, covers only part of the building footprint and does not maintain the same structural grid. This fourth level is proposed to be demolished. Refer to Figure 1.1.



Figure 1.1 – Player Wills Factory – Construction Stages.

At the time of BMCE's appointment, the factory building had been derelict for some time. The building roof drainage outlets were blocked almost throughout and waterproof membranes on the roof had failed, leading to significant water ingress and associated deterioration of both structural and non-structural elements (refer to Photos 1-10 in Appendix A). In addition, the factory contained a high proportion of Asbestos Containing Materials (ACM's). No design or as-built information was available in relation to the building structure.

A large-scale asbestos remediation project was carried out on the building, along with an initial demolition works which included removal of all non-structural partitions from within the building, to allow better assessment of the original building structure.

Upon completion of those works, a schedule of structural opening-up works and fabric testing was prepared to allow a structural assessment of the building be carried out. The following testing was carried out over a number of months:

- Exposure of existing pad and strip footings at all typical locations.
- Concrete core sampling and compressive testing of suspended slabs at levels 1,2 & 3.
- Slabs exposures at levels 1,2 & 3 to determine slab depths, reinforcement details, cover.
- Steel sampling from typical columns and beams on all floors for strength tensile testing and metallurgy analysis (some testing ongoing).
- Surveying of the brick and concrete encased steel structure within the external brick façade.
- Cathodic protection trials of encased steel subsequently (ongoing).

Investigation works pertaining to the primary structural elements are discussed in more detail below. At the time of preparation of this report, some of the investigations into the external façade are ongoing. A mark-up of our findings of the primary steel frame is provided in Appendix B.

2. STRUCTURAL INVESTIGATIONS

This section discusses the various structural investigation works which have been carried out to enable an assessment of the existing structure and subsequently design for the proposed new building. Refer to the following appendices for further details of these opening up and testing regime:

- Appendix D – United Metals Investigation Works;
- Appendix E – McFarland Consulting Façade Steelwork Survey
- Appendix F – Load Test Solutions Material Testing.

2.1 STEEL FRAME

2.1.1 Steel Sections and Properties

Due to the age of the structure, the steel sections sizes are not standard section sizes as used today. To establish section properties, dimensional measurements were carried out to compare the steel sections against historical imperial size section tables. At the time of construction of this building, the use of mild steel had started to become commonplace but cast iron and wrought iron steel was still available as a structural building product (refer to Photos 11-15 for images of the steel structure). To establish definite material properties, a number of steel samples were taken from external façade columns, internal columns and beams, over a number of floors, due to the different construction stages. The results of this testing confirmed that the steel used to construct this building was mild steel, generally comparable in its material properties to that commonly in use today, although to a lower design strength than typically adopted in modern construction. The results for the steel testing can be seen in Appendix F.

2.1.2 Ground and First Floor Columns

The ground floor columns are 180mm diameter solid steel sections and the first floor columns are 160mm diameter solid steel sections. Initial testing of the steel concluded that it is mild steel, however tensile testing proved inconclusive, therefore further testing of the steel is being carried out. The results of this testing will be used to determine if the columns are sufficient for the proposed building loads in accordance with current design standards, or if structural strengthening is required.

2.1.3 Second Floor Columns

The roof over the second floor (third floor) was constructed in two separate phases. The earlier phase consisted of the west wing of the building north of the first three bays back from the South Circular Road. This was built in the late 1920's and here the columns are 100mm diameter solid steel sections. These columns are a similar material to the floors below as noted in Section 2.1.2. Irrespective of the material type, due to the slender cross section of these columns, they will not have the capacity to support the proposed additional levels. These columns will need to be replaced to provide sufficient capacity for support of the proposed additional floors.

The remainder of the roof over the second floor (third floor) was constructed in the 1930's, and here the columns are universal beam sections to historic imperial section tables. Testing confirms the applicable strength grade as S235. Calculations carried out to date show that these columns are also insufficient in strength to cater for the proposed extended building loads, and they will need to be replaced to provide sufficient capacity for support of the proposed additional floors.

2.1.4 Perimeter Steel Frame

During the investigations, it was discovered that the external brick façade piers encase structural steel columns, and that the concrete lintels are an encasement to structural steel beams (refer to Photos 16-20 in Appendix A). Corrosion of the steelwork was noted in the initial opening up works and, as a result, further specialist cathodic protection testing has been commissioned. The results of this initial opening up can be seen in Appendix E. This is to establish if this method of corrosion protection will be successful in preventing further corrosion of the structural steelwork, which would affect its loadbearing capacity, and also result in expansive corrosion having deleterious effects on the encasing brick façade. This cathodic protection testing has commenced and a report outlining the findings and long term corrosion protection for the encased steel elements will be produced upon completion of the testing.

2.1.5 First and Second Floor Beams

The first and second floor beams are generally identical in layout and section size. Tensile testing indicates that a strength grade of at least S235 could be used, and up to S275 in place. Calculations show that these beams are sufficient for the proposed new building loads at level 1 and 2, including the higher loaded areas (communal and gym area).

2.1.6 Third (roof) Floor Beams

As noted in Section 2.1.3, the third level was constructed in two phases, after the main building was complete. Both primary and secondary beam sizes (in both phases) at this level are smaller than that of the floor below. Tensile testing indicates that a strength grade of S275. Calculations show that these beams are insufficient for the proposed new building loads.

The primary beams would have to be significantly strengthened to support the transferred columns for the proposed new structure above. These strengthening works would likely be invasive, result in major alterations to the original structure. Additional secondary transfer beams would be required at the lines of support for the new structure above, and to supplement the existing secondary beams so as to reduce the load per beam.

2.2 SLAB ON GRADE

A number of ground floor slab exposures were carried out. To do this, in conjunction with footing exposures, the slab was locally saw-cut and removed to expose typical cross sections of the slab. The existing ground floor slab consists of a 180mm thick slab (thickness varies slightly due to variable subgrade levels) over a crushed rock base (refer to Photo 21-22 in Appendix A). The slab does not have either a radon barrier or damp-proof membrane in place. It also does not have any insulation. All of the above was expected given the age of the structure. To comply with the requirement of current building regulations, along with necessary works to install new drainage and other sub-floor services, it will be necessary to remove the existing ground floor slab and replace this with a new slab with a compliant radon and damp-proof membrane and insulation.

2.3 SUSPENDED SLABS

Local opening of the existing slabs (approximately 500mm*500mm) was carried out at each area related to a different construction period. The concrete around the reinforcement was broken away to identify the type, spacing and size of the reinforcement, along with concrete cover for determination of exposure and fire rating capacity (refer to Photos 23-27 in

Appendix A). Concrete core samples were taken for compressive testing. Several samples of the reinforcement were also taken for tensile testing.

Non-structural screed containing timber batons at regular spacings have been cast above the structural slabs on levels 1 and 2. Given that the building was exposed to years of wet and damp conditions, these timber batons have rotted. To ensure the new construction is not subject to the potential effects of leaving these screeds in place, the screeds shall be removed and replaced with new non-structural floor screeds.

2.3.1 First and Second Floor Slabs

The first and second floor slabs consist of 114-120mm reinforced concrete structural slabs with 65-75mm thick non-structural screeds. The reinforcement consists of 4.1-4.3mm diameter round wire bars. Tensile testing on several steel samples confirmed the yield strength to be at least 500N/mm². Compressive tests were carried out on concrete core samples which returned results in the range of 28.8-56.2N/mm². Our analysis of these slabs confirms capacity to cater for the proposed new floor loads at these levels, including communal and gym areas. Results of the material testing are included in Appendix F.

The floor slab at both levels can provide the required fire rating without additional work.

2.3.2 Third (roof) Slab

The section of this slab constructed in the later 1920's covering the west wing of the building (approximately 30% of the full floor area) had a similar thickness, strength and reinforcement content to the original levels 1 and 2.

The section of the floor constructed in the 1930's has a slab thickness between 98-107mm. The reinforcing steel used in the slab is a wound wire type steel. The tensile test results for this slab show yield strengths as low as 384N/mm², with a much lower quantity of tensile steel than provided in the other slabs. The cover to the reinforcement in this slab was found to be as little as 10mm.

2.4 FOUNDATIONS

A number of footing exposures were carried out, typically two each at internal atrium columns location, internal columns and at external façade piers (refer to Photos 28-31 in Appendix A). These exposures comprised of locally removing the ground floor slab around each element to establish the footing type, size, depth and founding material. As expected, all foundations were found to be conventional concrete spread footings, with tiered bases which were common at the time of construction. The concrete was found to be in good condition. Compressive tests on core samples were also carried out, giving results of 59.1 and 61.3 N/mm². The footings are founded on a soft to firm brown boulder clay with relatively low bearing capacity of 80kN/m².

An assessment of the building loads was carried out to compare the proposed five level residential development to that of the original three level factory building. Due to the reduction in live loading, it is possible to found the proposed development on the existing foundations without additional strengthening, once any new concrete elements (floor slabs/screeds) are kept to a minimum, and the new roof constructed from lightweight material.

3. FINDINGS AND RECOMMENDATIONS

3.1 FINDINGS

An extensive amount of testing, opening up and structural assessment has been carried out to determine the capacity of the existing structure of the Player Wills Factory Building, with some testing yet to be complete.

It was found that the foundations have the capacity for the proposed development once the additional building load does not exceed the original building loads.

It was found that the primary steel beams and concrete slabs for the First and Second Floor have the capacity for the proposed development.

Further assessment is being carried out on the tensile capacity of the internal columns, and cathodic protection trials for the external façade columns to confirm they have capacity for the proposed development.

The third level extension to the original two storey building has been found to be inferior in quality and strength to that of the original building. The existing columns on the top level are small, and only fit for minor building loads. Likewise, the beams are undersized to take even typical floor loads as they were originally designed to support the roof.

The slab at this level is of very poor quality. The slab thickness, at less than 100mm, does not meet the minimum thickness required for 90 minute fire rating. Both the reinforcement quantity and tensile strength are very low resulting in an insufficient flexural strength in the slab, even for residential floor loads.

3.2 RECOMMENDATIONS

Considering the extremely poor quality of the existing roof slab, and low capacity of the supporting steel structure at level 2, it is recommended that the third floor structure, including the columns from Level 2 up, be replaced with a new structural steel and composite metal slab (approximately 110mm thick). This new structure would be designed so as to be suitable to transfer the loads from the new structure above to the existing structure below.

The façade, and the perimeter columns within the façade build up, would be protected and retained. Temporary works would be required during the construction works of the new third floor.

A cross section of the proposed structure for the additional levels for the development, including the replaced Level 3 is provided in Appendix C.

Conor Vaughan
Chartered Structural Engineer
Barrett Mahony Consulting Engineers

Appendix A

Photographs



Photo 1: Original Building Condition



Photo 2: Original Building Condition



Photo 3: Original Building Condition



Photo 4: Original Building Condition



Photo 5: Original Building Condition



Photo 6: Original Building Condition



Photo 7: Original Building Condition



Photo 8: Original Building Condition



Photo 9: Original Building Condition



Photo 10: Original Building Condition



Photo 11: Typical Ground/First Column and beam



Photo 12: Typical column head connection



Photo 13: Level 2 column (1930's section) with level 3 beams



Photo 14: Level 2 column for 1920's section



Photo 15: Level 2 in 1930's section



Photo 16: Embedded Steel



Photo 17: Embedded Steel



Photo 18: Embedded Steel



Photo 19: Embedded Steel



Photo 20: Embedded Steel



Photo 21: Ground Floor Slab



Photo 22: Ground Floor Slab



Photo 23: Core sample, with non-structural screed with timber batons



Photo 24: Core Sample



Photo 25: Level 1 Reinforcement



Photo 26: Level 2 reinforcement



Photo 27: Level 3 reinforcement



Photo 28: Tiered spread footing



Photo 29: Tiered spread footing



Photo 30: Tiered spread footing



Photo 31: Tiered spread footing

Appendix B

Existing Structure Mark-up

NOTES

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EXISTING FAÇADE TO BE RETAINED TO THIRD FLOOR PARAPET LEVEL. FAÇADE RETENTION SYSTEM TO BE PROVIDED TO LATERALLY SUPPORT WALL TO DEMOLITION CONTRACTORS DESIGN. THE RETENTION SYSTEM IS TO BE DESIGNED TO EXTEND MAXIMUM 3.5m FROM THE FACE OF THE RETAINED FAÇADE.

X-BRACE - INDICATIVE CROSS BRACING TO PROVIDE TEMPORARY LATERAL STABILITY UNTIL PERMANENT WORKS HAVE BEEN CONSTRUCTED.

POTENTIAL FOR INFILL MASONRY PANELS WITHIN EXISTING WINDOW OPENS FOR TEMPORARY LATERAL STABILITY.

EXISTING STAIR CORE TO BE DEMOLISHED. CARRY OUT EXPLORATORY WORKS TO CONFIRM IF ANY STEEL COLUMNS ARE ENCASED WITHIN THE STAIR AND NOTIFY THE ENGINEER OF FINDINGS. AWAIT INSTRUCTION BEFORE PROCEEDING WITH DEMOLITION. PROVIDE TEMPORARY PROPPING TO SUPPORT SLAB EDGES CURRENTLY SPANNING ONTO STAIR CORE WALLS UNTIL SUCH TIME AS PERMANENT WORKS ARE CONSTRUCTED.

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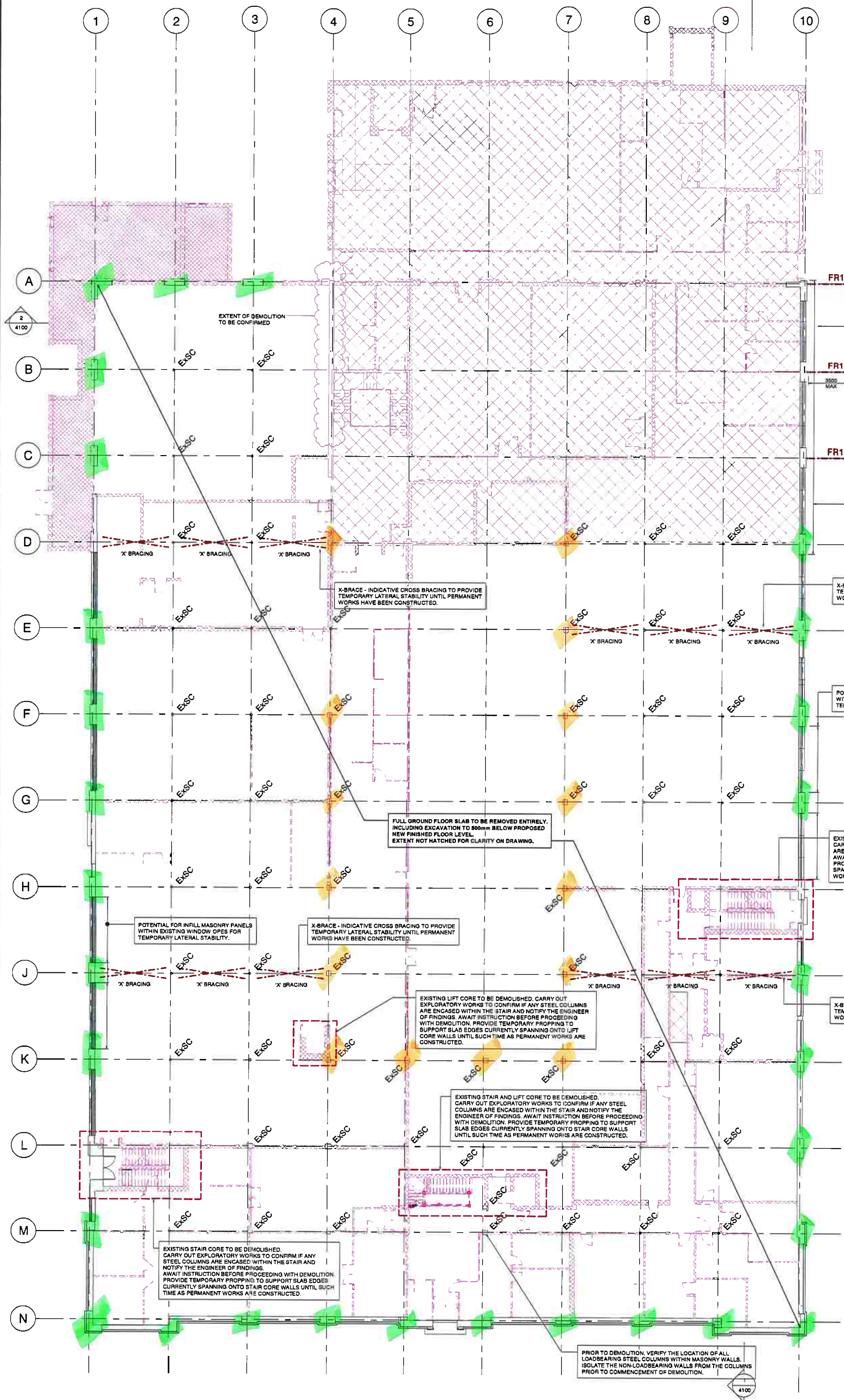
CLIENT: **CWTC MULTI FAMILY ICAY ACTING SOLELY IN RESPECT OF ITS SUB FUND DBTR SCR1 FUND**

PROJECT TITLE: **PLAYER WILLS SOUTH CIRCULAR ROAD** BM PROJECT No: **19.117**

REFERENCE SUITABILITY REVISION
 S0 P01.01

DRAWING TITLE: **PW1 ENABLING WORKS GROUND FLOOR PLAN**

DRAWING REFERENCE: **PW-BMD-00-00-S-4000** STATUS: **P01**



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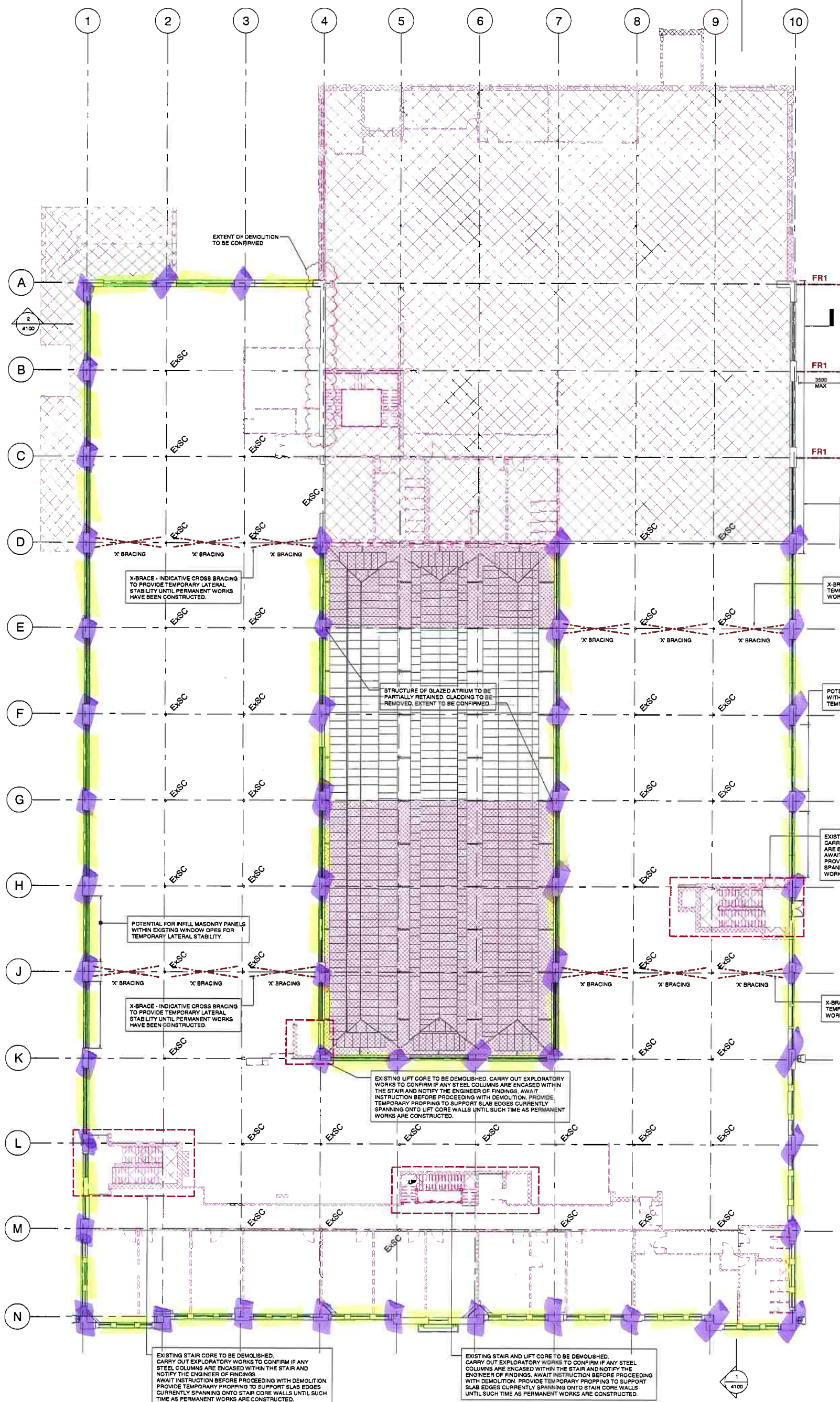
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PW1 ENABLING WORKS FIRST FLOOR PLAN

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CLIENT: **CWTC MULTI FAMILY ICAY ACTING SOLELY IN RESPECT OF ITS SUB FUND DBTR SCR1 FUND**

PROJECT TITLE: **PLAYER WILLS SOUTH CIRCULAR ROAD** BM PROJECT No. **19.117**

REFERENCE: SUITABILITY: REVISION: **S0 P01.01**

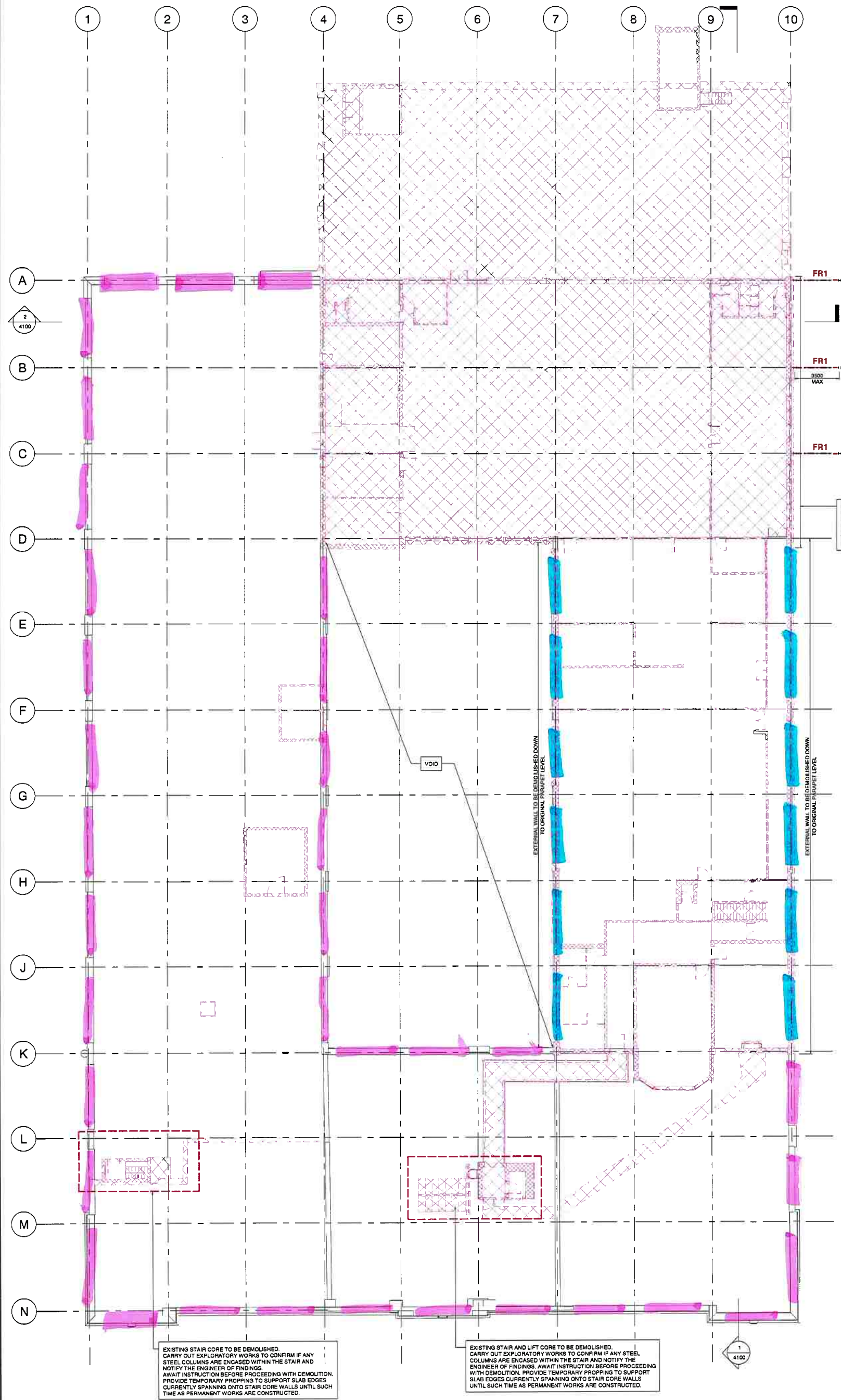
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PW-BMD-00-03-S-4003		P01

TABLE NO. 3.7 PROPERTIES OF BEAMS TO BRITISH STANDARD 4. 1903

IMPERIAL UNITS See separate page for notes

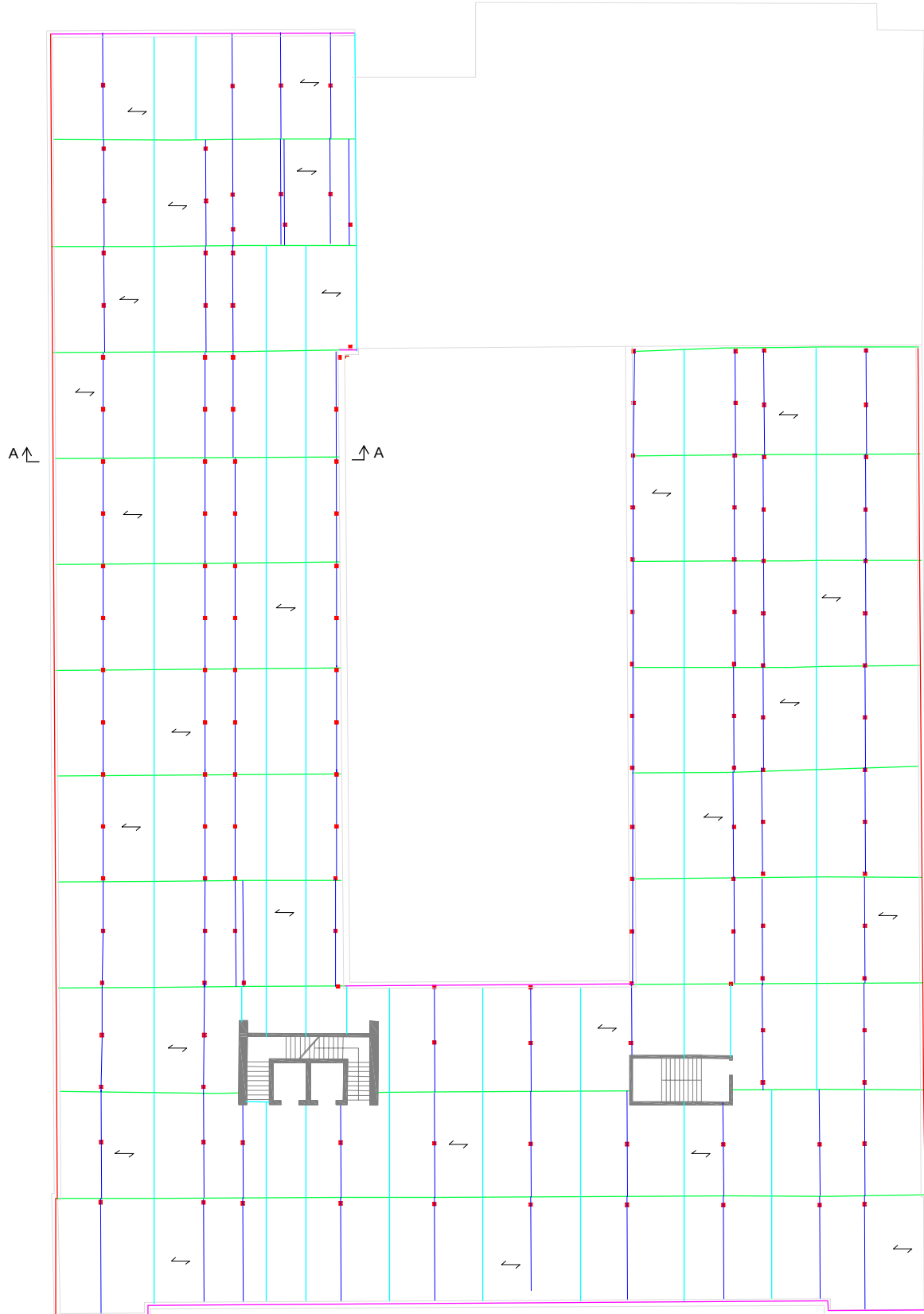
Ref No.	Size D x B	Approximate Mass/ft	Metric Equivalent D x B	Mass/m	Thickness Web Flange	Area	Mom. of Inert. X - X Y - Y	Rad. of Gyr. X - X Y - Y	Sec. Mod. X - X Y - Y
	ins	lbs	mm	kg	ins	ins ²	ins ⁴	ins	ins ³
BSB 1	3 x1.50	4.0	76x 38	6	0.16 0.25	1.18	1.66 0.12	1.19 0.33	1.11 0.17
BSB 2	3 x3	8.5	76x 76	13	0.20 0.33	2.50	3.79 1.26	1.23 0.71	2.53 0.84
BSB 3	4 x1.75	5.0	102x 44	7	0.17 0.24	1.47	3.67 0.19	1.58 0.36	1.84 0.22
BSB 4	4 x3	9.5	102x 76	14	0.22 0.34	2.80	7.53 1.28	1.64 0.68	3.76 0.85
BSB 5	4.75x1.75	6.5	121x 44	10	0.18 0.33	1.91	6.77 0.26	1.88 0.37	2.85 0.30
BSB 6	5 x3	11.0	127x 76	16	0.22 0.38	3.24	13.6 1.46	2.05 0.67	5.45 0.97
BSB 7	5 x4.50	18.0	127x114	27	0.29 0.45	5.29	22.7 5.66	2.07 1.03	9.08 2.51
BSB 8	6 x3	12.0	152x 76	18	0.26 0.35	3.53	20.2 1.34	2.40 0.62	6.74 0.89
BSB 9	6 x4.50	20.0	152x114	30	0.37 0.43	5.88	34.7 5.41	2.43 0.96	11.6 2.40
BSB 10	6 x5	25.0	152x127	37	0.41 0.52	7.35	43.6 9.11	2.44 1.11	14.5 3.64
BSB 11	7 x4	16.0	178x102	24	0.25 0.39	4.71	39.2 3.41	2.89 0.85	11.2 1.71
BSB 12	8 x4	18.0	203x102	27	0.28 0.40	5.30	55.7 3.57	3.24 0.82	13.9 1.79
BSB 13	8 x5	28.0	203x127	42	0.35 0.58	8.24	89.4 10.3	3.29 1.12	22.3 4.10
BSB 14	8 x6	35.0	203x152	52	0.44 0.60	10.29	110.6 17.9	3.28 1.32	27.6 5.98
BSB 15	9 x4	21.0	229x102	31	0.30 0.46	6.18	81.1 4.20	3.62 0.82	18.0 2.10
BSB 16	9 x7	58.0	229x178	86	0.55 0.92	17.06	229.7 46.3	3.67 1.65	51.05 13.20
BSB 17	10 x5	30.0	254x127	45	0.36 0.55	8.82	145.7 9.78	4.06 1.05	29.14 3.91
BSB 18	10 x6	42.0	254x152	63	0.40 0.74	12.36	211.6 22.9	4.14 1.36	42.32 7.64
BSB 19	10 x8	70.0	254x203	104	0.60 0.97	20.58	345.0 71.6	4.09 1.87	69.01 17.9
BSB 20	12 x5	32.0	305x127	48	0.35 0.55	9.41	220.1 9.74	4.84 1.02	36.69 3.90
BSB 21	12 x6	44.0	305x152	66	0.40 0.72	12.95	315.4 22.3	4.94 1.31	52.57 7.42
BSB 22	12 x6	54.0	305x152	80	0.50 0.88	15.88	375.6 28.3	4.86 1.33	62.60 9.43
BSB 23	14 x6	46.0	356x152	69	0.40 0.70	13.53	440.6 21.6	5.71 1.26	62.95 7.20
BSB 24	14 x6	57.0	356x152	85	0.50 0.87	16.77	533.1 27.9	5.64 1.29	76.16 9.31
BSB 25	15 x5	42.0	381x127	63	0.42 0.65	12.35	428.2 11.9	5.89 0.98	57.09 4.78
BSB 26	15 x6	59.0	381x152	88	0.50 0.88	17.35	629.1 28.2	6.02 1.28	83.88 9.40
BSB 27	16 x6	62.0	406x152	92	0.55 0.85	18.23	726.0 27.1	6.31 1.22	90.74 9.02
BSB 28	18 x7	75.0	457x178	112	0.55 0.93	22.07	1150.0 46.6	7.22 1.45	127.7 13.30
BSB 29	20 x7.50	89.0	508x191	132	0.60 1.01	26.16	1671.0 62.6	7.99 1.55	167.1 16.70
BSB 30	24 x7.50	100.0	610x191	149	0.60 1.07	29.39	2655.0 66.9	9.50 1.51	221.2 17.80

Appendix C

Proposed Additional Level Structure

1. DEMOLISH EXISTING SLAB AND BEAMS
2. INSTALL NEW PRIMARY BEAMS ALONG EXISTING COLUMN LINE.
3. INSTALL SECONDARY TRANSFER BEAMS TO TRANSFER THE LOADS FROM THE COLUMNS ABOVE TO THE PRIMARY BEAMS.
4. INSTALL NEW SECONDARY STEEL AND PERIMETER BEAMS.
5. INSTALL NEW COMFLOR 51+ WITH 110mm SLAB (SIMILAR TO NEW FLOOR ABOVE).
6. INSTALL NEW COLUMNS LEVEL 02 - LEVEL 03.

- COLUMNS FROM LEVEL 04 ABOVE
- TRANSFER SECONDARY BEAMS - 406 x 178 UB 74
- NEW SECONDARY BEAMS - 305 x 127 UB 48
- NEW PRIMARY BEAMS INSTALLED ALONG EXISTING COLUMN LINE - 533 x 210 UB 109
- NEW PRIMARY BEAMS - 533 x 165 UB 66
- ↔ COMFLOR 51+ WITH 110mm SLAB
- NEW PERIMETER BEAMS - 305 x 127 UB 33



LEVEL 03

- 152 UC 37
- 203 x 102 UB 23
- 203 x 133 UB 30
- ↔ COMFLOR 51+ WITH 110mm SLAB

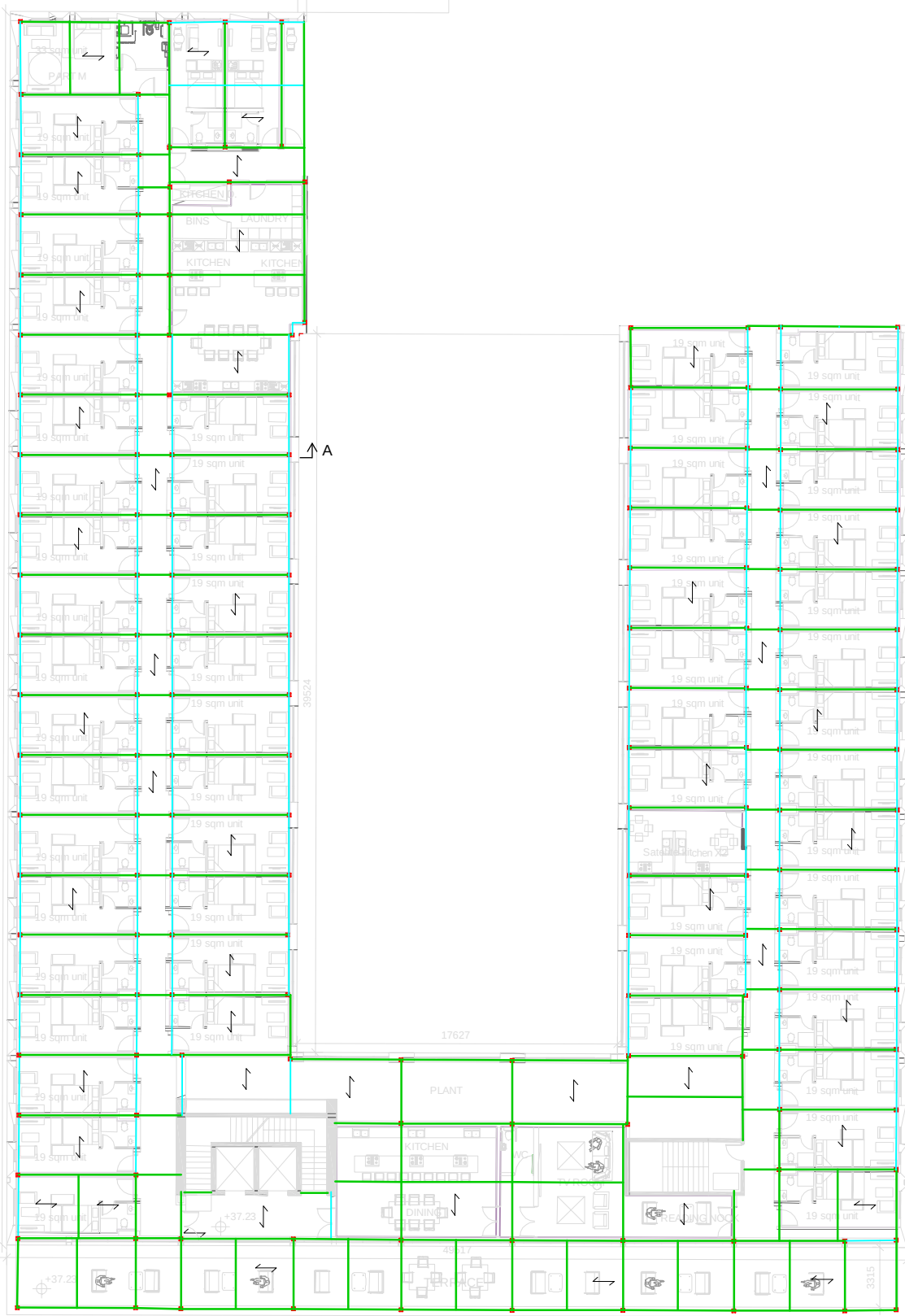
A ↑

↑ A

67826

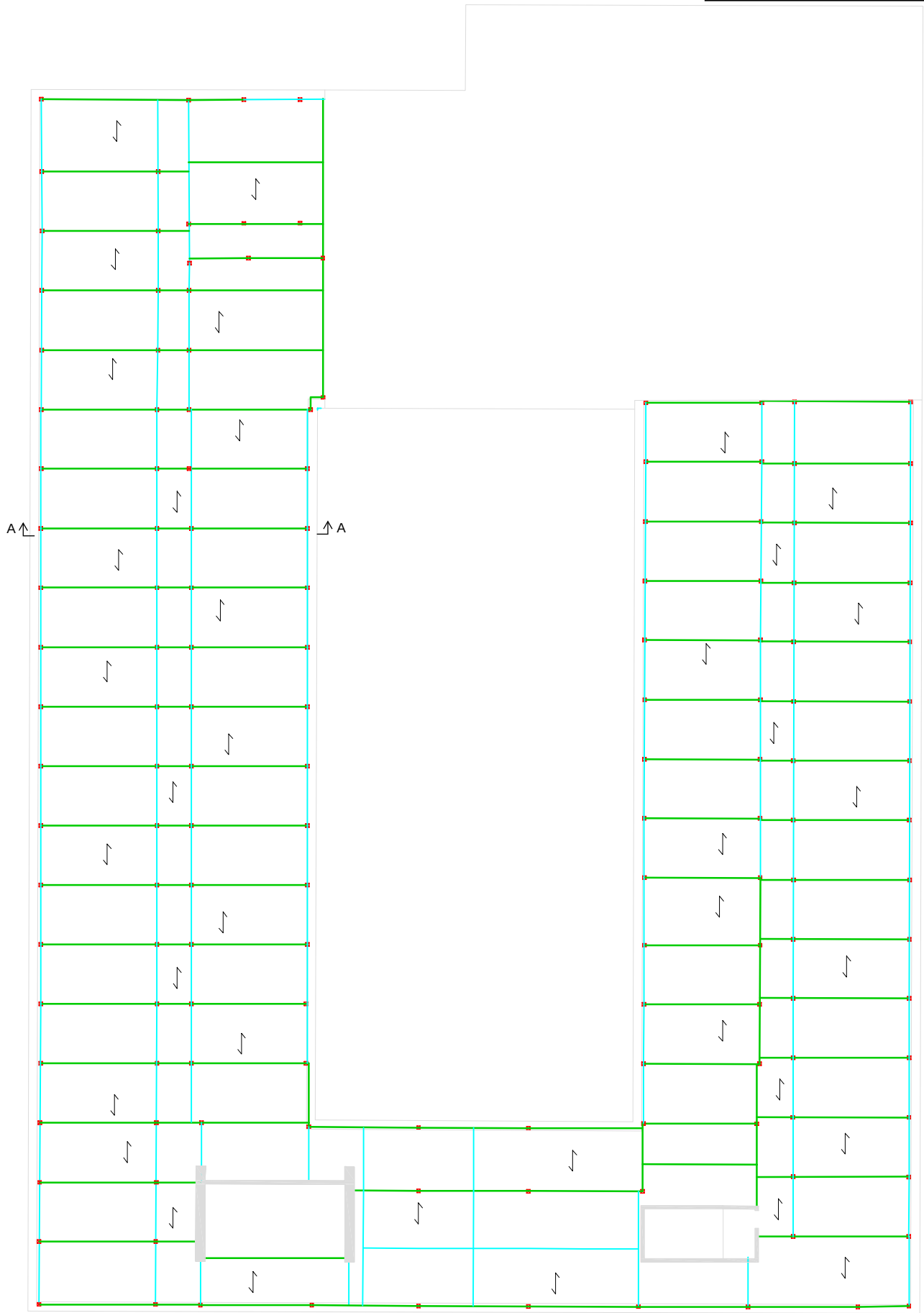
39524

17627



LEVEL 04

- 152 UC 37
- 203 x 102 UB 23
- 203 x 133 UB 30
- ↔ TEGRAL D60 ROOF SYSTEM OR
SIMILAR APPROVED



ROOF

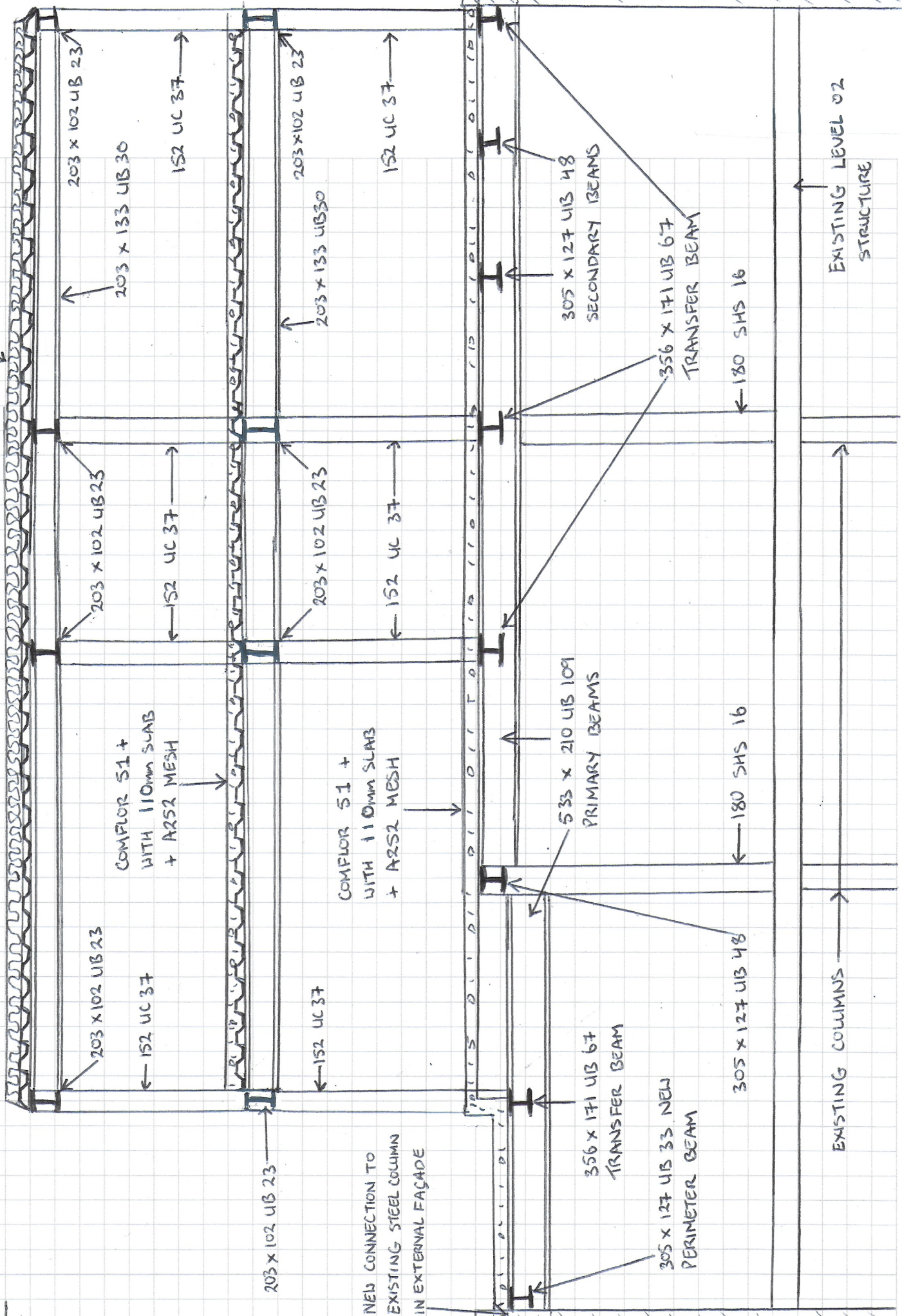
TEGAL D60 ROOF SYSTEM

ROOF

LEVEL 04

LEVEL 03

LEVEL 02



SECTION A-A

Appendix D

United Metal Investigation Works

Player Wills

Address :	
Generated on	- 20/02/2020
Stages	- United Metals - Player Wills
Building trades	- Investigation Works
Stakeholders	- United Metals Recycling (Ireland) Ltd Casey Niall
Drawings	- 2019-10-16 (United Metals - Player Wills) - First floor plan (United Metals - Player Wills) - Second floor plan (United Metals - Player Wills) - Third floor plan (United Metals - Player Wills) - ground floor investigation 1 (United Metals - Player Wills)



22 + 16/10/2019



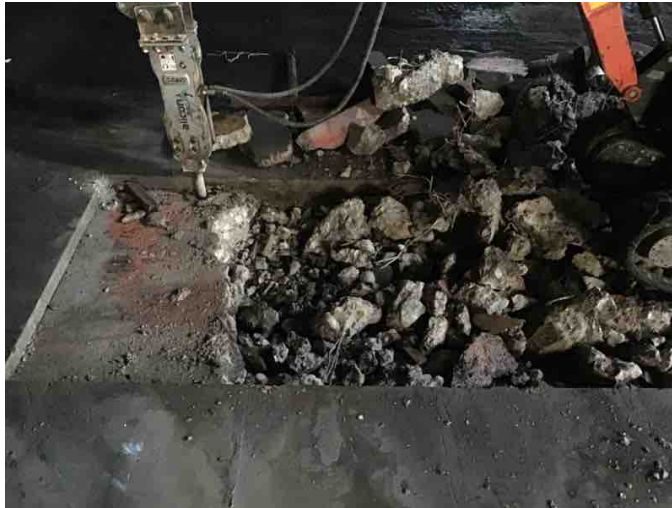
23 + 16/10/2019



24 + 16/10/2019



25 + 16/10/2019

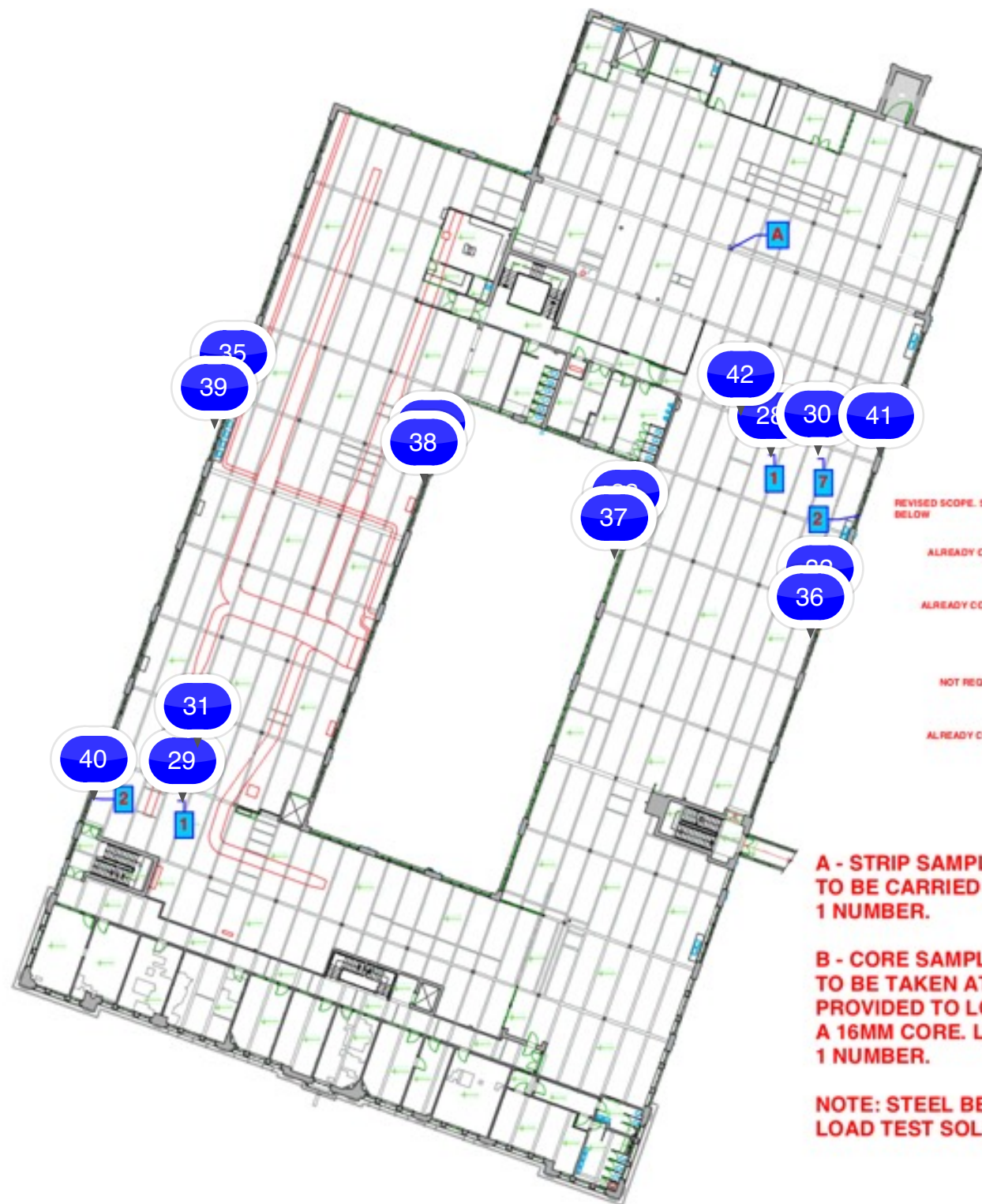


26 + 16/10/2019



27 + 16/10/2019



**BUILDING SURVEY**

THE SURVEYOR SHALL CONFIRM THE BOTTOM FLANGE WIDTH AND THICKNESS OF ALL STEEL BEAMS ON ALL LEVELS AND INCLUDE THIS INFORMATION ON THE SURVEY. THE SURVEYOR SHALL CONFIRM ALL COLUMN SIZES ON ALL LEVELS AND INCLUDE THIS INFORMATION ON THE SURVEY. UNIVERSAL BEAM AND COLUMN SECTION FLANGE THICKNESSES SHALL ALSO BE INCLUDED

CONDITION SURVEY

A CONDITION SCHEDULE OF THE STRUCTURE SHALL BE CARRIED TO FACILITATE IDENTIFICATION AND TENDERING OF RECTIFICATION WORKS TO STRUCTURE TO BE RETAINED. THE SURVEY IS TO FOCUS ON LODBEARING ELEMENTS OF STRUCTURE - SLABS, BEAMS, COLUMNS AND MASONRY OR CONCRETE WALLS. THE SURVEY IS TO BE CARRIED OUT ON A GRID BASIS THROUGHOUT THE BUILDING AND SHALL INCLUDE BOTH PHOTOGRAPHS AND DESCRIPTIONS

OPENING UP WORKS SCHEDULE		
NUMBER	TITLE	DESCRIPTION
1	SLAB EXPOSURE 4 No. 2 No.	BREAK OUT 500MM*500MM AREA OF SLAB AT MIDSPAN BETWEEN BEAMS. DO NOT CUT REINFORCEMENT. CONFIRM SLAB THICKNESS AND REINFORCEMENT DETAILS - TOP AND BOTTOM.
2	RING BEAM EXPOSURE 2 No.	REMOVE CONCRETE COVER OVER A LENGTH OF 300MM OFF THE INTERNAL EDGE AND ACROSS BASE OF THE BEAM AT 3M OFF MASONRY PIER. CONFIRM COVER DEPTH, AND REINFORCEMENT DETAILS
3	PIER HOLES TO INTERNAL STEEL COLUMNS 4 No.	DRILL A PIHOLE, 50MM DIAMETER THROUGH ONE SIDE OF THE COLUMN AT A HEIGHT OF 300MM. CONFIRM WALL THICKNESS
4	CONFIRMATION OF BEAM DRYOUT 3 No.	REMOVE CEILING AS NECESSARY TO CONFIRM SECONDARY BEAM ARRANGEMENT MATCHES MAIN GRID
5	CONFIRM IF BEAMS ARE CONCRETE ENCASED STEEL 2 No.	DRILL PIHOLE IN DOWNSTAND BEAM AT MID DEPTH WITH 50MM MASONRY DRILL BIT. CONFIRM IF BEAM IS CONCRETE OR ENCASED STEEL. IF CONCRETE, REMOVE COVER CONCRETE OVER 300MM LENGTH ACROSS BASE AND ONE SIDE TO EXPOSE REINFORCEMENT. CONFIRM ALL DIMENSIONS IF STEEL. EXPOSE BOTTOM FLANGE AND CONFIRM BEAM DEPTH, FLANGE THICKNESS AND WIDTH.
6	DRILL COMPRESSIVE TEST 2 No.	REMOVE 10MM. DRILLS FROM BELOW WINDOW, ADJACENT TO PIER, AND CARRY OUT COMPRESSIVE TESTING ON SAME
7	SLAB CONCRETE COMPRESSIVE TEST 4 No. 2 No.	CORES TO BE TAKEN THROUGH SLAB, CLEAR OF BEAMS. CARRY OUT COMPRESSIVE TESTS ON SAME
8	CONFIRM IF MASONRY WALLS ARE CONCRETE OR BRICK 3 No.	DRILL 50MM HOLES THROUGH WALL 150MM BELOW FIRST FLOOR. SCRUB OFF WITH MASONRY BIT TO CONFIRM IF BRICK IS PRESENT. CONFIRM COLUMN LOCATIONS IN WALL IF PRESENT
REPAIR CONCRETE COVER, WHERE REMOVED, WITH SIKKA CONCRETE REPAIR MORTAR AND PRIMERS. PROVIDE SAFETY COVERS AT SLAB EXPOSURE LOCATIONS		

A - STRIP SAMPLE TO BE TAKEN FROM WEB OF COLUMN. TO BE CARRIED OUT BY LOAD TEST SOLUTIONS. 1 NUMBER.

B - CORE SAMPLE THROUGH CIRCULAR COLUMN. CORE TO BE TAKEN AT 300MM ABOVE BASE AND SAMPLE PROVIDED TO LOAD TEST SOLUTIONS FOR TESTING. USE A 16MM CORE. LARGER THAN THE PREVIOUS CORE TEST 1 NUMBER.

NOTE: STEEL BEAM SAMPLES WILL ALSO BE TAKEN BY LOAD TEST SOLUTIONS

NOTES

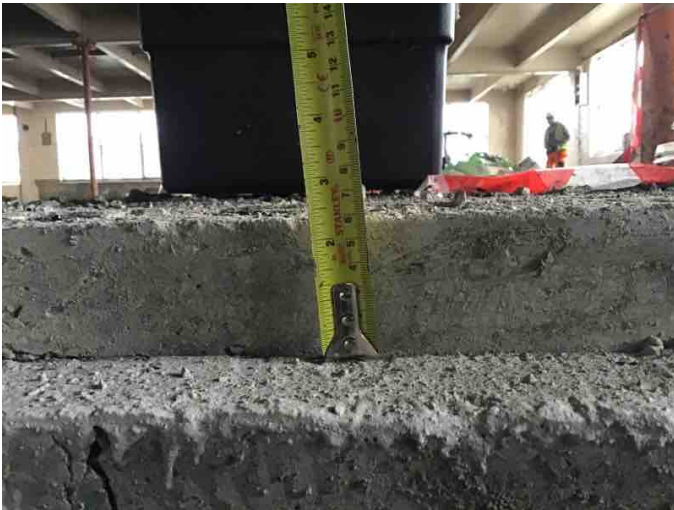
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL SPECIFICATIONS AND ARCHITECT'S DRAWINGS. DIMENSIONS SHOWN ONLY IF NOT OTHERWISE STATED.
- CONTRACTOR TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.

REVISED 28.01.2020		
DATE	DATE	DESCRIPTION
28.01.2020	28.01.2020	PRELIMINARY
BM BUILDING MANAGEMENT CONSULTING ENGINEERS, CIVIL, STRUCTURAL, PROJECT MANAGEMENT AND SURVEILLANCE. WWW.BM.CO.UK 10 WILSON STREET, LONDON E1 1AA, ENGLAND TEL: 020 457 0000 FAX: 020 457 0000 EMAIL: info@bm.co.uk		
CLIENT: CWTC MULTI FAMILY ICAY ACTING SOLELY IN RESPECT OF ITS SUB FUND DBTR SCR1 FUND		
PROJECT TITLE	PROJECT NO.	PROJECT NO.
PLAYER WILLS FACTORY	19.117	
MODEL REFERENCE	MODEL NO.	SUBJECTIVITY
PROJECT TITLE	PLAYER WILLS FACTORY OPENING UP WORKS FIRST FLOOR PLAN	
PROJECT NO.	PWF-BMD-00-00-S-4101	DATE
		P01

NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL SPECIFICATIONS AND ARCHITECT'S DRAWINGS. DIMENSIONS SHOWN ONLY IF NOT OTHERWISE STATED.

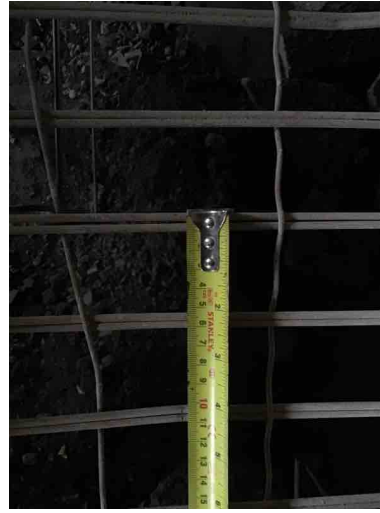
28 07/02/2020





29 07/02/2020





30 07/02/2020





31 07/02/2020



32 07/02/2020



33 07/02/2020



34 07/02/2020





35 07/02/2020





36 + 07/02/2020



37 07/02/2020



38 07/02/2020



39 07/02/2020



40 07/02/2020



41 07/02/2020



42 07/02/2020



43 07/02/2020



44 07/02/2020



45 07/02/2020









47 + 07/02/2020



48 + 07/02/2020



NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS & ARCHITECTS' DRAWINGS INCLUDING DIMENSIONS ONLY NOT BEING TO BE USED WHERE A CONFLICT OF INFORMATION EXISTS (DIP IN JAW) EXCEPT - SEE
- CONSULTANTS TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS

BUILDING SURVEY

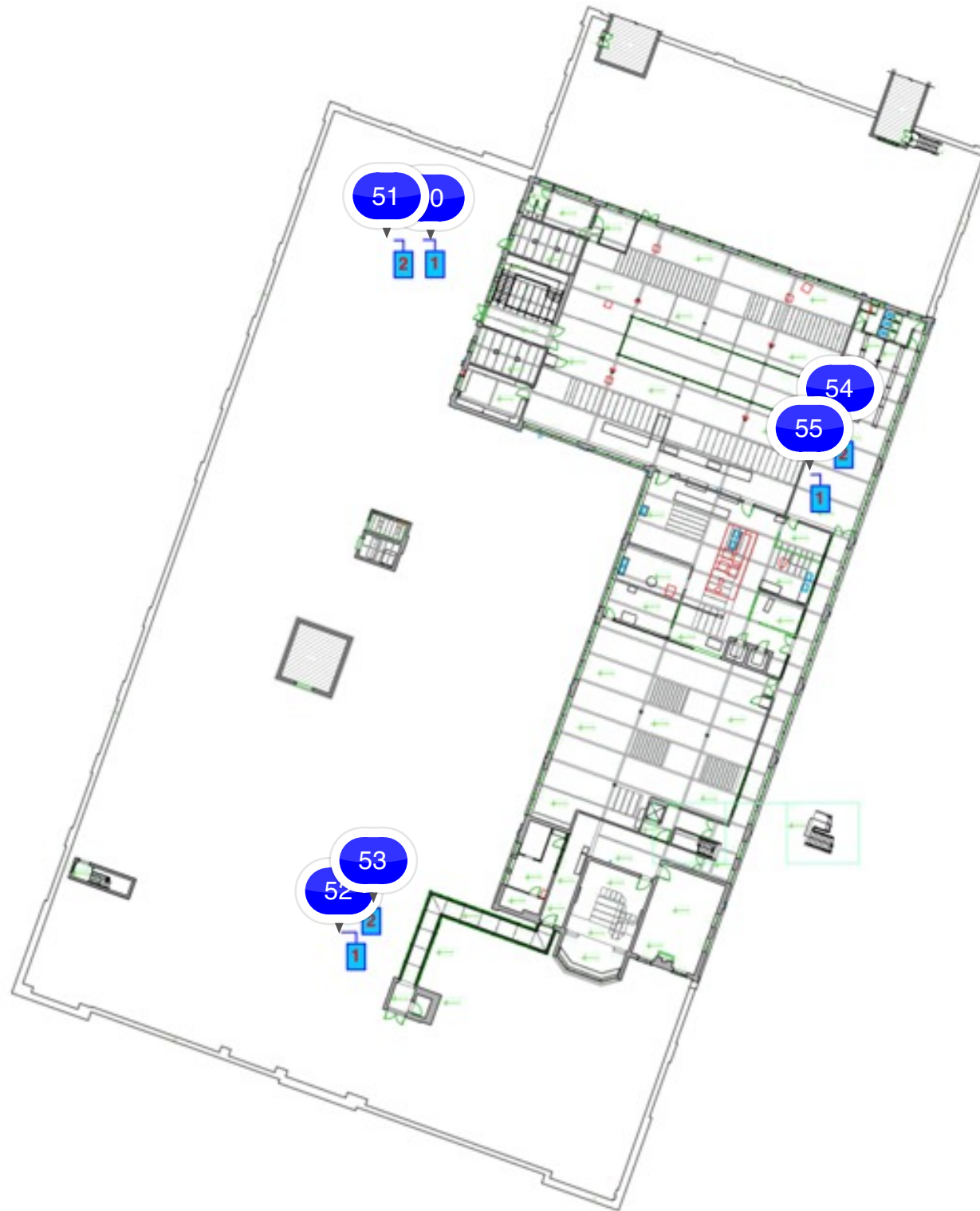
THE SURVEYOR SHALL CONFIRM THE BOTTOM FLANGE WIDTH AND THICKNESS OF ALL STEEL BEAMS ON ALL LEVELS AND INCLUDE THIS INFORMATION ON THE SURVEY. THE SURVEYOR SHALL CONFIRM ALL COLUMN SIZES ON ALL LEVELS AND INCLUDE THIS INFORMATION ON THE SURVEY. UNIVERSAL BEAM AND COLUMN SECTION FLANGE THICKNESSES SHALL ALSO BE INCLUDED

CONDITION SURVEY

A CONDITION SCHEDULE OF THE STRUCTURE SHALL BE CARRIED TO FACILITATE IDENTIFICATION AND TENDERING OF RECTIFICATION WORKS TO STRUCTURE TO BE RETAINED. THE SURVEY IS TO FOCUS ON LOADBEARING ELEMENTS OF STRUCTURE - SLABS, BEAMS, COLUMNS AND MASONRY OR CONCRETE WALLS. THE SURVEY IS TO BE CARRIED OUT ON A GRID BASIS THROUGHOUT THE BUILDING AND SHALL INCLUDE BOTH PHOTOGRAPHS AND DESCRIPTIONS

OPENING UP WORKS SCHEDULE

NUMBER	TITLE	DESCRIPTION
1	SLAB EXPOSURE 3 No.	BREAK OUT 500MM*500MM AREA OF SLAB AT MIDSPAN BETWEEN BEAMS BELOW. DO NOT CUT REINFORCEMENT. CONFIRM SLAB THICKNESS AND REINFORCEMENT DETAILS - TOP AND BOTTOM.
2	SLAB CONCRETE COMPRESSIVE TEST 3 No.	CORES TO BE TAKEN THROUGH SLAB, CLEAR OF BEAMS. CARRY OUT COMPRESSIVE TESTS ON SAME
REPAIR CONCRETE COVER, WHERE REMOVED, WITH SIKU CONCRETE REPAIR MORTAR AND PRIMERS. REINSTATE WATERPROOFING TO ROOF SLAB WHERE EXPOSURES HAVE BEEN CARRIED OUT		



REVISION 26.01.2020	
DATE	DESCRIPTION
26.01.2020	PRELIMINARY
BM BUREAU OF MEASUREMENT 10 WILSON ROAD, SINGAPORE 120750 Tel: (65) 6777 0000 Fax: (65) 6777 0001 Email: info@bm.com.sg Website: www.bm.com.sg	
Accredited Engineers, Civil, Structural, Project Management and Surveying 	
CLIENT CWTC MULTI FAMILY ICAP ACTING SOLELY IN RESPECT OF ITS SUB FUND DBTR SCR1 FUND	
PROJECT TITLE	PROJECT NO.
PLAYER WILLS FACTORY	19.117
ISSUED FOR	ISSUED BY
PLAYER WILLS FACTORY OPENING UP WORKS THIRD FLOOR PLAN	
DRAWING NO.	ISSUE
PWF-BMD-00-00-S-4103	P01



51 17/02/2020



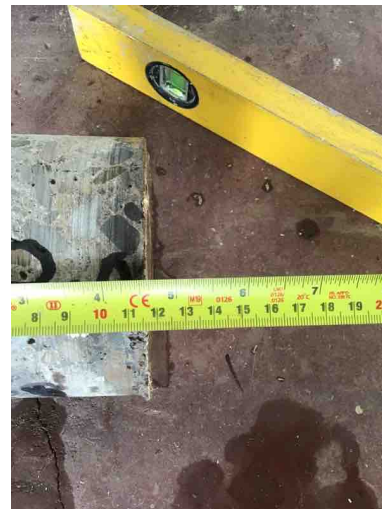
52 17/02/2020



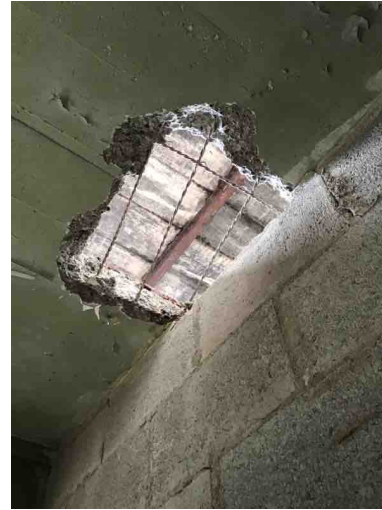
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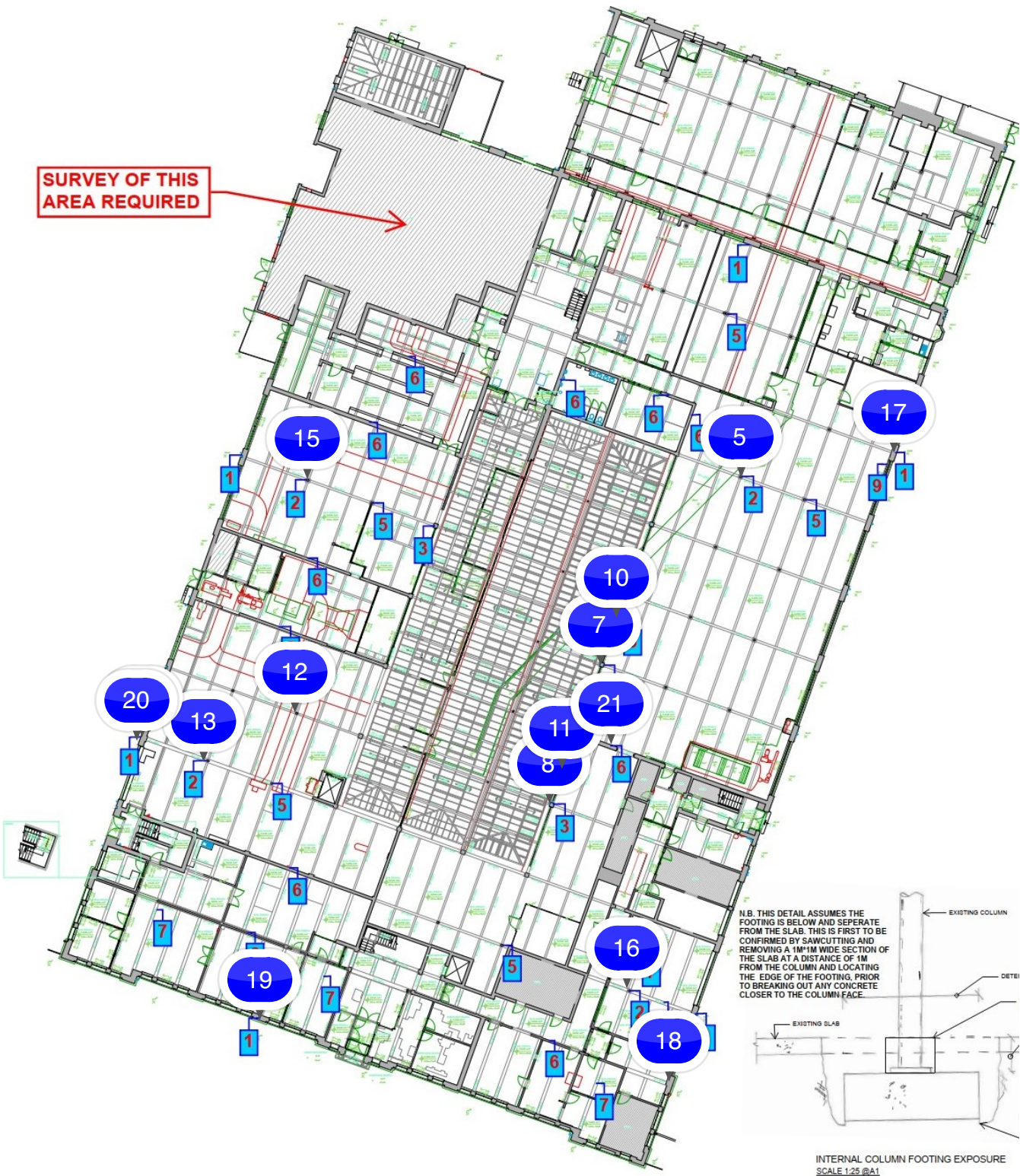


54 + 17/02/2020

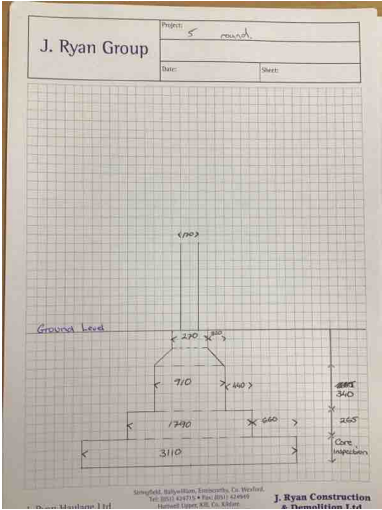


55 17/02/2020





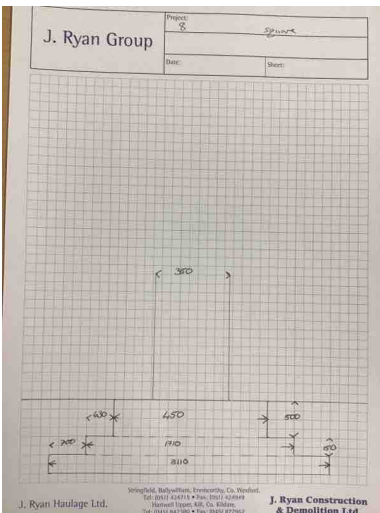
5 24/09/2019





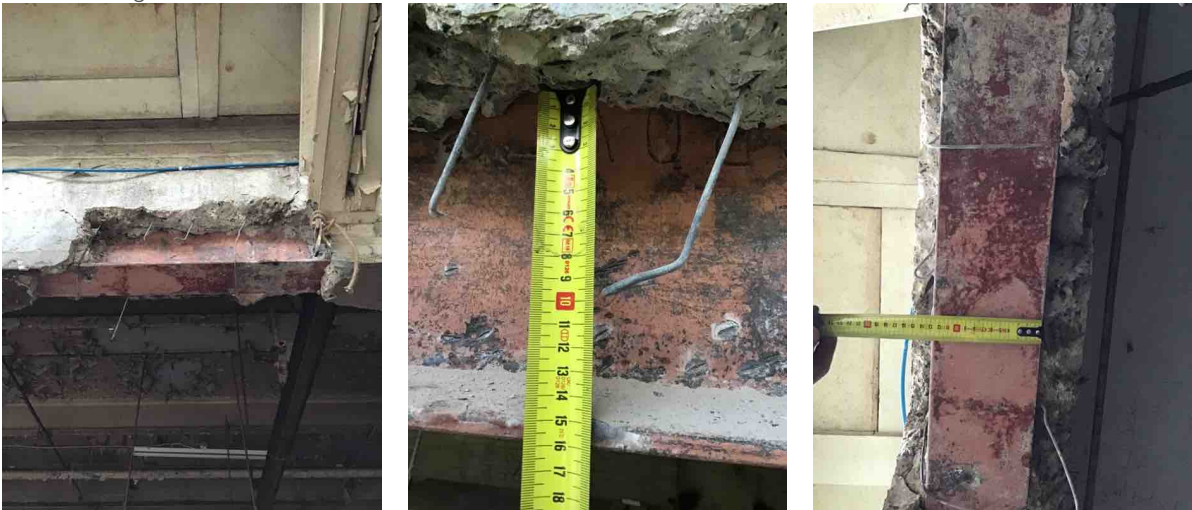
7 24/09/2019
Steel Investigation





10 + 24/09/2019

Steel Investigation

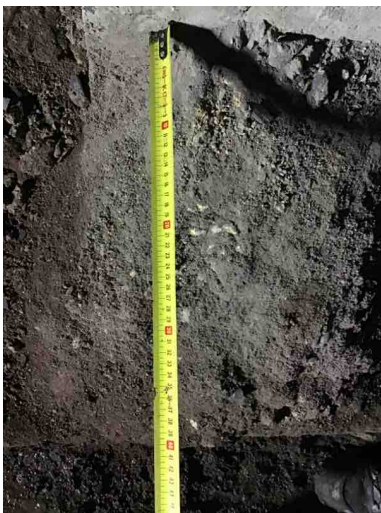


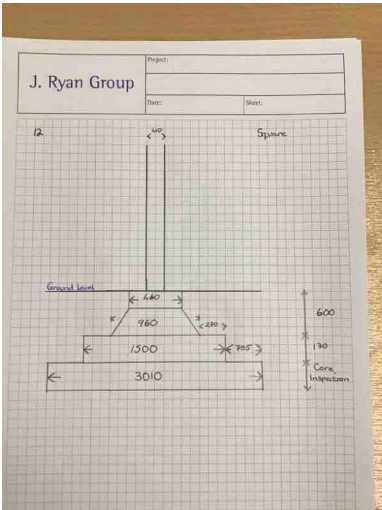
11 + 24/09/2019

Steel Investigation



12 24/09/2019



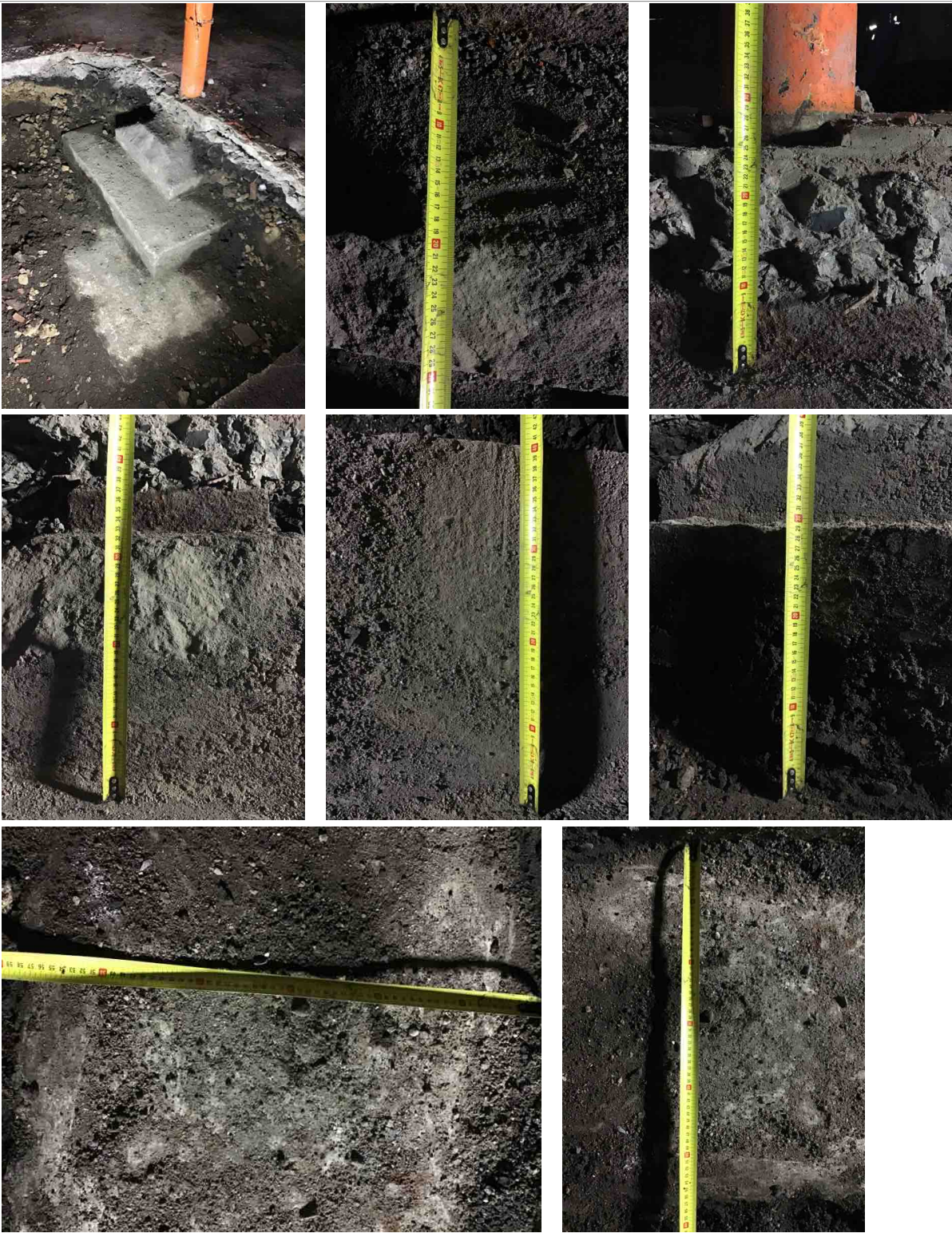


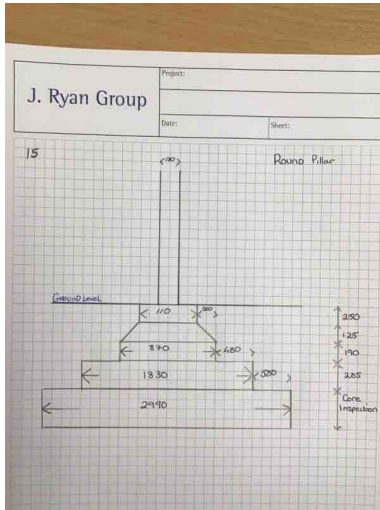
14 24/09/2019

Inside Wall Investigation

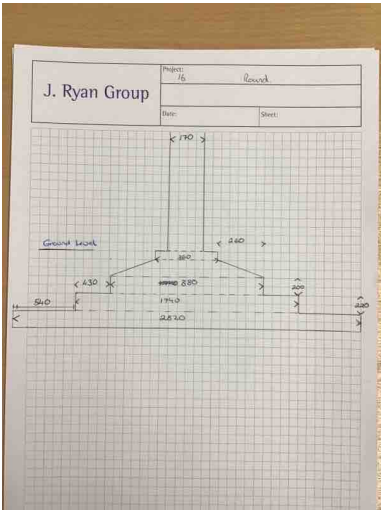


15 24/09/2019

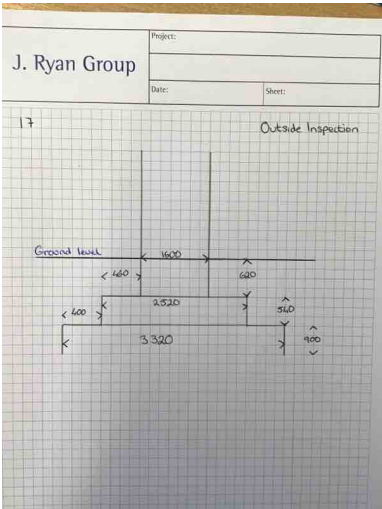
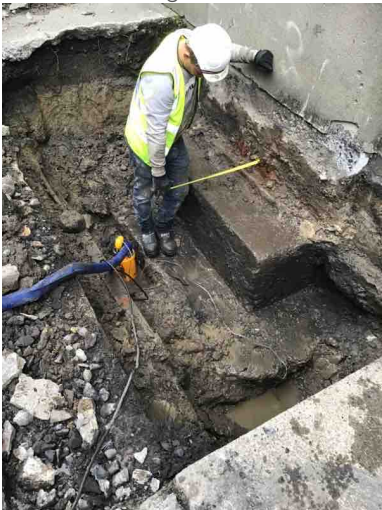






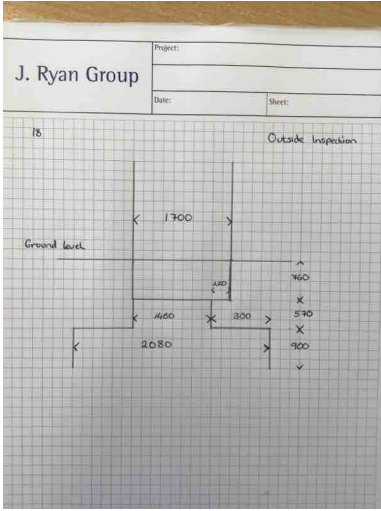
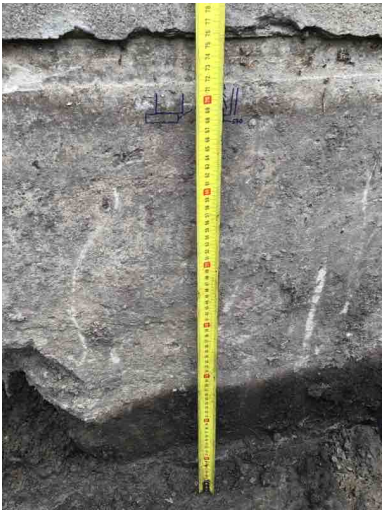
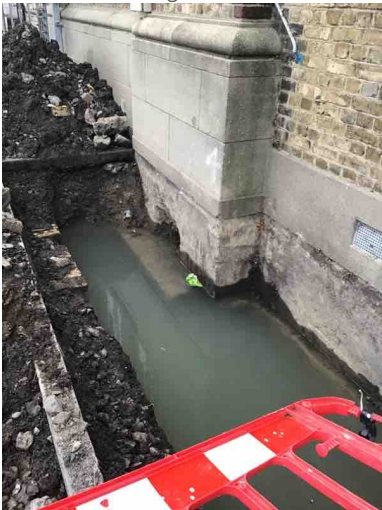


17 25/09/2019
OutSide Investigation



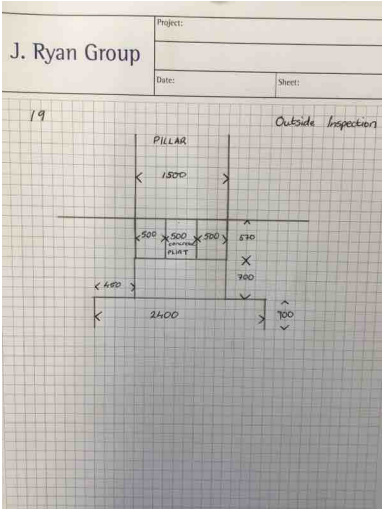


18 25/09/2019
OutSide Investigation



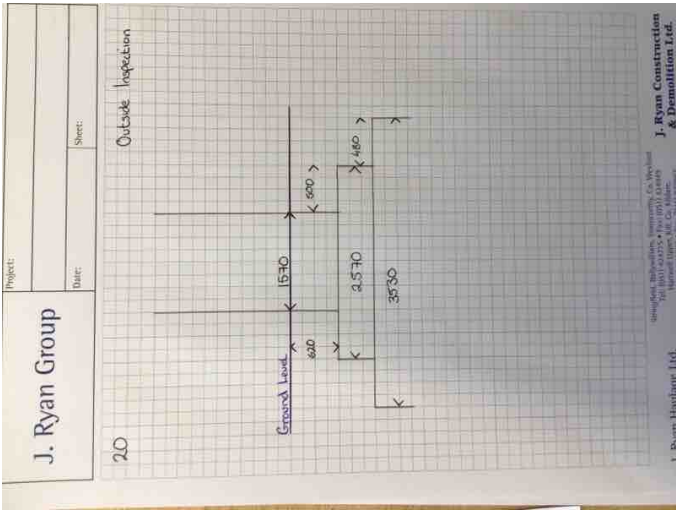


19 25/09/2019
OutSide Investigation





OutSide Investigation





21 + 27/09/2019
Brick Investigation



United Metals Recycling (Ireland) Ltd Casey Niall
Address : Eastway Business Park, Ballysimmon
 Limerick

Phone : 0877827946
email : niall.casey@unitedmetals.ie

Appendix E

McFarland Consulting Façade Steelwork Survey

Player Wills Factory – Column Condition Survey

19575-MCL-XX-RP-J-0001-P01

To: Ciaran O'Rafferty**From:** Jason Kearney**Re:** Player Wills Factory, Column Condition Survey**Date:** 22/06/2020

1.0 INTRODUCTION

On the 10th March 2020, McFarland Consulting Limited (MCL) were instructed by Arran Timms, of Virtus, to commence investigative works concerning the remediation of cracked brickwork piers at the Player Wills Factory, Dublin. This report relates to the first phase of investigative works; a condition survey of affected columns and lintels by means of visual inspection. The survey was undertaken between the 27th and 28th May 2020 by 2no. MCL Corrosion Engineers.

2.0 SCOPE OF WORKS

The scope of works included undertaking a visual inspection of encased columns and lintels within the existing factory building and subsequently assigning a condition rating to each. The condition rating considers:

- Whether the columns/lintels are presently exhibiting cracking, spalling or delamination;
- Whether the columns/lintels are visibly saturated or stained; and
- The proximity of rainwater goods to the encased elements (as a likely source of water ingress to date).

Only those columns and lintels to be retained as part of the refurbishment works were surveyed. The findings of this condition survey will inform the selection of localised investigations, including non-destructive testing and cathodic protection trials, that are to be undertaken in subsequent phases of works.

3.0 CAVEATS AND EXCLUSIONS

Any information made available to us in the course of the investigation whether verbal or in the form of drawings, documents, reports etc. has been assumed to be bona fide and of reliable content.

4.0 DESCRIPTION OF THE STRUCTURE

This derelict factory building, constructed in 1923, is a masonry clad steel frame structure that is to be refurbished for residential use. The steel frame is exposed within the building interior, however, across the exterior elevations the steel columns have been encased within brick piers. The columns located along the perimeter of the central atrium are also encased; the ground floor columns are encased in concrete whilst the columns on the upper floors are encased in brick. It is evident from opening up works undertaken by others that no cavity space exists between the steel columns and the surrounding brick encasement at the majority of locations. There was evidence of a small cavity space having been incorporated within 1no. second floor encased column located adjacent to the internal atrium space.

Additionally, a combination of steel sections encased in concrete and reinforced concrete has been used in the construction of window lintels throughout the building. The encased steel lintels are present over ground, first and second floor windows. Reinforced concrete lintels are present over a selection of second floor windows.

5.0 FINDINGS AND OBSERVATIONS

The visual inspection of the encased columns and lintels was undertaken from ground level around the exterior of the building and from the respective floor levels within the building interior such that the exposed faces of each element could be inspected. The exterior faces of the atrium columns (those facing into the atrium void space) were visually inspected from the surrounding roof level.

The exterior and interior faces of each element were inspected and subsequently assigned a condition rating and corresponding colour indicator, in accordance with the convention outlined in Figure 1 below. Where the assigned condition rating for the interior and exterior faces of the same element differed, the more severe condition is considered to apply to the element overall.

An observation register for each element can be found in Appendix A. Plan drawings indicating the assigned condition rating for each element on a floor by floor basis can be found in Appendix B.

Observed Condition	Colour Rating
Visual inspection inhibited – i.e. obscured from view by surface finishes, increased pier thickness, mechanical damage (demolition activities) etc. Element not encased in brickwork/concrete.	No Colour
No obvious defects observed	
Fine to moderate cracking of brickwork or concrete observed. Evidence of saturation observed - increased likelihood of corrosion of embedded steel.	
Heavy cracking of brickwork or concrete observed. Bulging or displacement of brickwork observed. Spalled or delaminated concrete observed.	

Figure 1: RAG Condition Rating

A summary of observations is outlined below:

- Numerous instances of cracking were observed on the brickwork encasement at column locations. The severity of cracking ranged from hairline cracking to heavy cracking. The orientation of the observed cracking tended to be vertical, following the alignment of the embedded steel column (Plates 1 to 3). In the most severe of cases, 2no. parallel vertical cracks, coinciding with alignment of the column flanges, were present over the full height (storey height) of the affected columns (Plates 4 to 6).

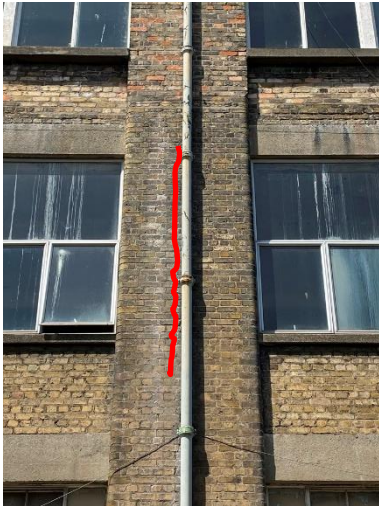


Plate 1



Plate 2



Plate 3



Plate 4



Plate 5



Plate 6

- Bulging and displacement of the brickwork encasement was identified at 1no. location (Plate 7).

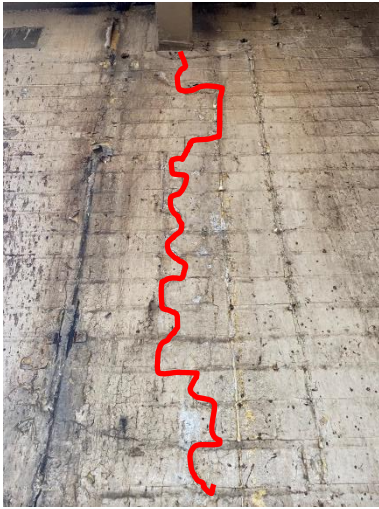


Plate 7

- Evidence of saturation was identified at a number of encased column and lintel locations (Plates 8 and 9). Saturation was particularly prevalent across the south elevation internally (Plates 10 and 11). Whilst the areas where saturation was evident often also exhibited cracking, there were instances where saturation was not accompanied by observable defects. Nonetheless, there is an increased likelihood of corrosion occurring at these locations given the availability of moisture to support the corrosion process.



Plate 8

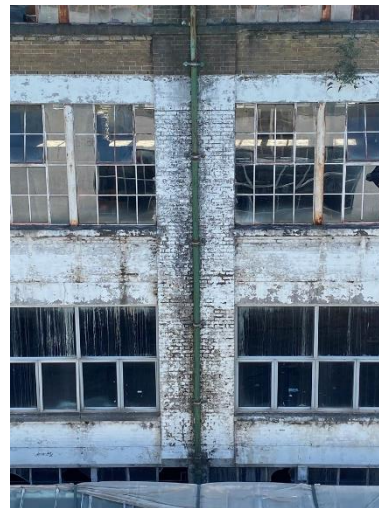


Plate 9

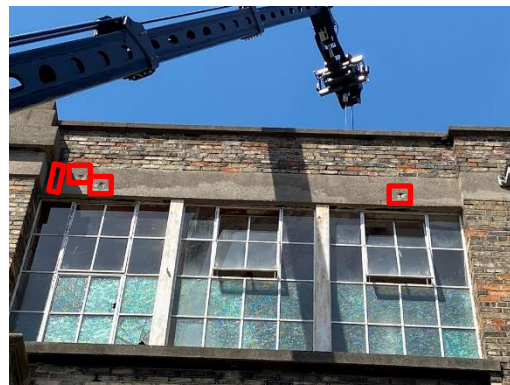
**Plate 10****Plate 11**

- Numerous instances of cracking were observed on concrete encased lintels. The cracking was predominantly vertical in orientation, likely coinciding with the position of supplementary stirrups (Plates 12 and 13) – this type of bar reinforcement was observed surrounding the steel lintel sections at locations where opening up works had been undertaken (by others). At a limited number of locations, horizontal cracking was also observed, likely coinciding with the bottom flange of the encased lintel (Plates 14 to 16). Localised cracking of the concrete encasement was also observed at the point of connection between encased lintels and secondary beams (Plate 17).

**Plate 12****Plate 13****Plate 14****Plate 15**

**Plate 16****Plate 17**

- Numerous instances of cracking were also observed on reinforced concrete lintels, likely coinciding with the position of shear links (Plate 18). At a selection of reinforced concrete lintels, spalled concrete and exposed corroded reinforcement was identified (Plate 19). Reinforced concrete lintels are believed only to be present over a selection of second floor window locations.

**Plate 18****Plate 19**

- Within the interior of the building, surface finishes (paint coatings, tiling, plasterwork, panelling etc.) may have inhibited the identification of defects (plate 20). Additionally, along the southern building elevation (gridline N) the existence of inbuilt chimney flues, thickened brick piers and exterior stone cladding may have concealed defects (Plates 21 to 23).

**Plate 20****Plate 21**

**Plate 22****Plate 23**

- Localised areas of brick/concrete encasement have been removed (by others) to expose the embedded steel sections or steel reinforcement. The condition of the steel present at these locations varied, from exhibiting little or no corrosion (Plates 24 and 25) to exhibiting moderate surface corrosion (Plates 26 and 27). From the limited number of elements exposed, it appears that the embedded columns located along the eastern elevation are worst affected.

**Plate 24****Plate 25****Plate 26****Plate 27**

6.0 CONCLUSIONS

Cracking of the encasement surrounding columns and lintels was observed at numerous locations throughout the building, both on external and internal faces. The survey also indicates a significant concentration of defects to the eastern aspect of the building on the first floor. In addition to the observed cracking, spalled and delaminated concrete was also identified on a selection of reinforced concrete lintels located on the second floor.

The nature of the observed cracking, in conjunction with the condition of the embedded steel exposed in localised areas, would suggest that steel corrosion is a likely cause of the observed defects. The lack of cavity space provided between the embedded steel columns and the surrounding brick encasement is likely contributing to the cracking observed at these locations. In the absence of a cavity space, the build-up of expansive corrosion products on the surface of the steel columns imposes increased stress directly onto the surrounding brickwork, subsequently causing it to crack. However, cracking arising from structural deficiencies or structural movement cannot be ruled out; these considerations should be checked by a suitably qualified structural engineer.

Nonetheless, it is recommended that further investigations are undertaken to determine whether the embedded steel is likely to be actively corroding, and the extent over which this may be occurring. It is also recommended that investigations are undertaken to determine the presence of deleterious contaminants or the action of deterioration processes which may be contributing to the corrosion of the embedded steel.

Appendix A – Observation Register

Element Ref:	Type	Level	Face	Notes	Face-by-Face RAG Rating	Combined RAG Rating
A3	Column	0	Interior	Not Encased		
			Exterior	Heavy Vertical Cracking - (2no Parallel)		
A2	Column	0	Interior	Heavy Vertical Cracking - (1no)		
			Exterior	Heavy Vertical Cracking - (2no Parallel)		
A1	Column	0	Interior	Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
B1	Column	0	Interior	Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
C1	Column	0	Interior	Visually Sound		
			Exterior	Visually Sound		
D1	Column	0	Interior	Isolated Fine Vertical Cracking - (1no)		
			Exterior	Visually Sound		
E1	Column	0	Interior	Encasement Partially Removed		
			Exterior	Visually Sound		
F1	Column	0	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
G1	Column	0	Interior	Encasement Partially Removed		
			Exterior	Heavy Vertical Cracking - ()		
H1	Column	0	Interior	Visually Sound		
			Exterior	Visually Sound		
J1	Column	0	Interior	Visually Sound		
			Exterior	Visually Sound		
K1	Column	0	Interior	Obscured from View		
			Exterior	Isolated Heavy Vertical Cracking - (1no)		
L1	Column	0	Interior	Visually Sound		
			Exterior	Visually Sound		
M1	Column	0	Interior	Visually Sound		
			Exterior	Visually Sound		
N1	Column	0	Interior	Obscured from View		
			Exterior	Visually Sound		

Element Ref:	Type	Level	Face	Notes	Face-by-Face RAG Rating	Combined RAG Rating
N2	Column	0	Interior	Visually Sound	Green	Red
			Exterior	Heavy Vertical Cracking - ()	Red	
N3	Column	0	Interior	Cracked Render and Saturation	Yellow	Yellow
			Exterior	Visually Sound	Green	
N4	Column	0	Interior	Heavy Vertical Cracking - ()	Red	Red
			Exterior	Visually Sound	Green	
N5	Column	0	Interior	Heavy Vertical Cracking - ()	Red	Red
			Exterior	Visually Sound	Green	
N6	Column	0	Interior	Isolated Moderate Vertical Cracking - ()	Yellow	Yellow
			Exterior	Visually Sound	Green	
N7	Column	0	Interior	Cracked Render	Yellow	Yellow
			Exterior	Visually Sound	Green	
N8	Column	0	Interior	Visually Sound	Green	Green
			Exterior	Visually Sound	Green	
N9	Column	0	Interior	Cracked Render	Yellow	Yellow
			Exterior	Visually Sound	Green	
N10	Column	0	Interior	Visually Sound	Green	Red
			Exterior	Heavy Vertical Cracking - ()	Red	
M10	Column	0	Interior	Isolated Moderate Vertical Cracking - ()	Yellow	Yellow
			Exterior	Visually Sound	Green	
L10	Column	0	Interior	Heavy Vertical Cracking - ()	Red	Red
			Exterior	Isolated Heavy Vertical Cracking - (2no Parallel)	Red	
K10	Column	0	Interior	Encasement Partially Removed	White	Green
			Exterior	Visually Sound	Green	
J10	Column	0	Interior	Visually Sound	Green	Green
			Exterior	Visually Sound	Green	
H10	Column	0	Interior	Visually Sound	Green	Green
			Exterior	Visually Sound	Green	
G10	Column	0	Interior	Heavy Vertical Cracking - (2no Parallel)	Red	Red
			Exterior	Visually Sound	Green	

Element Ref:	Type	Level	Face	Notes	Face-by-Face RAG Rating	Combined RAG Rating
F10	Column	0	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
E10	Column	0	Interior	Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
D10	Column	0	Interior	Moderate Vertical Cracking - (2no Parallel)		
			Exterior	Visually Sound		
D4	Column	0	Interior	Mechanical Damage		
			Exterior	n/a		
E4	Column	0	Interior	Visually Sound		
			Exterior	n/a		
F4	Column	0	Interior	Visually Sound		
			Exterior	n/a		
G4	Column	0	Interior	Moderate Vertical Cracking - ()		
			Exterior	n/a		
H4	Column	0	Interior	Visually Sound		
			Exterior	n/a		
J4	Column	0	Interior	Visually Sound		
			Exterior	n/a		
K4	Column	0	Interior	Visually Sound		
			Exterior	n/a		
K5	Column	0	Interior	Visually Sound		
			Exterior	n/a		
K6	Column	0	Interior	Moderate Horizontal Cracking - ()		
			Exterior	n/a		
K7	Column	0	Interior	Visually Sound		
			Exterior	n/a		
J7	Column	0	Interior	Visually Sound		
			Exterior	n/a		
H7	Column	0	Interior	Visually Sound		
			Exterior	n/a		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
G7	Column	0	Interior	Visually Sound		
			Exterior	n/a		
F7	Column	0	Interior	Mechanical Damage		
			Exterior	n/a		
E7	Column	0	Interior	Fine Horizontal Cracking - ()		
			Exterior	n/a		
D7	Column	0	Interior	Visually Sound		
			Exterior	n/a		

Element Ref:	Type	Level	Face	Notes	Face-by-Face RAG Rating	Combined RAG Rating
A3	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
A2	Column	1	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
A1	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
B1	Column	1	Interior	Isolated Heavy Vertical Cracking - ()		
			Exterior	Visually Sound		
C1	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Visually Sound		
D1	Column	1	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
E1	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
F1	Column	1	Interior	Heavy Vertical Cracking - ()		
			Exterior	Isolated Fine Vertical Cracking - (1no)		
G1	Column	1	Interior	Isolated Moderate Vertical Cracking - (2no Parallel)		
			Exterior	Visually Sound		
H1	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
J1	Column	1	Interior	Heavy Vertical Cracking - ()		
			Exterior	Visually Sound		
K1	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
L1	Column	1	Interior	Heavy Vertical Cracking - (2no. Parallel)		
			Exterior	Visually Sound		
M1	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
N1	Column	1	Interior	Visually Sound c/w Chimney Thickening		
			Exterior	Heavy Vertical Cracking - ()		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
N2	Column	1	Interior	Visually Sound c/w Chimney Thickening		
			Exterior	Isolated Heavy Vertical Cracking - ()		
N3	Column	1	Interior	Visually Sound c/w Thickened Pier		
			Exterior	Visually Sound		
N4	Column	1	Interior	Visually Sound c/w Chimney Thickening		
			Exterior	Visually Sound		
N5	Column	1	Interior	Visually Sound c/w Thickened Pier		
			Exterior	Visually Sound		
N6	Column	1	Interior	Visually Sound c/w Chimney Thickening		
			Exterior	Isolated Moderate Vertical Cracking - ()		
N7	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
N8	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
N9	Column	1	Interior	Visually Sound c/w Thickened Pier		
			Exterior	Visually Sound		
N10	Column	1	Interior	Visually Sound		
			Exterior	Heavy Vertical Cracking - ()		
M10	Column	1	Interior	Heavy Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - ()		
L10	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Heavy Vertical Cracking - ()		
K10	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Isolated Heavy Vertical Cracking - (2no)		
J10	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
H10	Column	1	Interior	Visually Sound c/w Thickened Pier		
			Exterior	Heavy Vertical Cracking - ()		
G10	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Heavy Vertical Cracking - ()		

Element Ref:	Type	Level	Face	Notes	Face-by-Face RAG Rating	Combined RAG Rating
F10	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Heavy Vertical Cracking - ()		
E10	Column	1	Interior	Heavy Vertical Cracking - ()		
			Exterior	Heavy Vertical Cracking - ()		
D10	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Heavy Vertical Cracking - ()		
D4	Column	1	Interior	Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
E4	Column	1	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
F4	Column	1	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
G4	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Visually Sound & Saturated		
H4	Column	1	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
J4	Column	1	Interior	Isolated Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Visually Sound		
K4	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
K5	Column	1	Interior	Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
K6	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
K7	Column	1	Interior	Visually Sound		
			Exterior	Visually Sound		
J7	Column	1	Interior	Heavy Vertical Cracking - ()		
			Exterior	Heavy Vertical Cracking - ()		
H7	Column	1	Interior	Isolated Heavy Vertical Cracking - (1no)		
			Exterior	Heavy Vertical Cracking - ()		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
G7	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Saturation Evident		
F7	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Heavy Vertical Cracking - ()		
E7	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Isolated Heavy Vertical Cracking - ()		
D7	Column	1	Interior	Heavy Vertical Cracking - (2no Parallel)		
			Exterior	Visually Sound		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
A3	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
A2	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
A1	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
B1	Column	2	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
C1	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
D1	Column	2	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (2no)		
E1	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
F1	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
G1	Column	2	Interior	Isolated Fine Vertical Cracking - ()		
			Exterior	Visually Sound		
H1	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
J1	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
K1	Column	2	Interior	Isolated Fine Vertical Cracking - ()		
			Exterior	Visually Sound		
L1	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
M1	Column	2	Interior	Visually Sound c/w Thickened Pier		
			Exterior	Visually Sound		
N1	Column	2	Interior	Visually Sound c/w Chimney Thickening		
			Exterior	Visually Sound		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
N2	Column	2	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
N3	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
N4	Column	2	Interior	Visually Sound c/w Thickened Pier		
			Exterior	Visually Sound		
N5	Column	2	Interior	Visually Sound + Saturation		
			Exterior	Visually Sound		
N6	Column	2	Interior	Visually Sound c/w Thickened Pier		
			Exterior	Visually Sound		
N7	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
N8	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
N9	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
N10	Column	2	Interior	Obscured from view		
			Exterior	Visually Sound		
M10	Column	2	Interior	Visually Sound + Saturation		
			Exterior	Visually Sound		
L10	Column	2	Interior	Visually Sound + Saturation		
			Exterior	Visually Sound		
K10	Column	2	Interior	Isolated Heavy Vertical Cracking - ()		
			Exterior	Visually Sound		
J10	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
H10	Column	2	Interior	Visually Sound c/w Thickened Pier		
			Exterior	Visually Sound		
G10	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
F10	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
E10	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
D10	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
D4	Column	2	Interior	Heavy Vertical Cracking - ()		
			Exterior	Visually Sound		
E4	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
F4	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
G4	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound + Saturated		
H4	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
J4	Column	2	Interior	Isolated Fine Vertical Cracking - ()		
			Exterior	Visually Sound		
K4	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
K5	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
K6	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
K7	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
J7	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
H7	Column	2	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - ()		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
G7	Column	2	Interior	Visually Sound		
			Exterior	Heavily Saturated		
F7	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
E7	Column	2	Interior	Visually Sound		
			Exterior	Visually Sound		
D7	Column	2	Interior	Heavy Vertical Cracking - (Bulging)		
			Exterior	Visually Sound		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
A3/4	Lintel	0	Interior	Fine Vertical Cracking - ()		
			Exterior	Visually Sound		
A2/3	Lintel	0	Interior	Fine Vertical Cracking - ()		
			Exterior	Visually Sound		
A1/2	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (1no)		
A/B1	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (3no)		
B/C1	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
C/D1	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
D/E1	Lintel	0	Interior	Fine Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (4no)		
E/F1	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (1no)		
F/G1	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		
G/H1	Lintel	0	Interior	Fine Vertical Cracking - (2no)		
			Exterior	Isolated Heavy Vertical Cracking - (2no)		
H/J1	Lintel	0	Interior	Isolated Mechanical Damage		
			Exterior	Isolated Heavy Vertical Cracking - (2no)		
J/K1	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (4no)		
K/L1	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (2no)		
L/M1	Lintel	0	Interior	Flaking Paint Obscuring View		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		
M/N1	Lintel	0	Interior	Heavy Horizontal & Moderate Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (4no)		

Element Ref:	Type	Level	Face	Notes	Face-by-Face RAG Rating	Combined RAG Rating
N1/2	Lintel	0	Interior	Fine Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (4no)		
N2/3	Lintel	0	Interior	Moderate Vertical Cracking - ()		
			Exterior	Isolated Moderate Vertical Cracking - (5no)		
N3/4	Lintel	0	Interior	Cracked Render & Saturation		
			Exterior	Isolated Moderate Vertical Cracking - (4no)		
N4/5	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (4no)		
N5/6	Lintel	0	Interior	Visually Sound + Saturation		
			Exterior	Visually Sound		
N6/7	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (4no)		
N7/8	Lintel	0	Interior	Fine Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (4no)		
N8/9	Lintel	0	Interior	Fine Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (4no)		
N9/10	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (2no)		
M/N10	Lintel	0	Interior	Moderate Vertical Cracking - ()		
			Exterior	Isolated Fine Vertical Cracking - (3no)		
L/M10	Lintel	0	Interior	Moderate Vertical Cracking - (4no)		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		
K/L10	Lintel	0	Interior	Heavy Vertical Cracking - (3no)		
			Exterior	Isolated Heavy Vertical Cracking - (2no)		
J/K10	Lintel	0	Interior	Moderate Vertical & Horizontal Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (2no)		
H/J10	Lintel	0	Interior	Fine Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (1no)		
G/H10	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
F/G10	Lintel	0	Interior	Fine Vertical Cracking - (2no)		
			Exterior	Isolated Fine Vertical Cracking - (1no)		
E/F10	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
D/E10	Lintel	0	Interior	Fine Vertical Cracking - (1no)		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
D/E4	Lintel	0	Interior	Mechanical Damage		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
E/F4	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Fine Vertical Cracking - (2no)		
F/G4	Lintel	0	Interior	Localised Fine Vertical Cracking - ()		
			Exterior	Visually Sound		
G/H4	Lintel	0	Interior	Fine Vertical Cracking - ()		
			Exterior	Isolated Fine Vertical Cracking - (1no)		
H/J4	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (3no)		
J/K4	Lintel	0	Interior	Fine Vertical Cracking - ()		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
K4/5	Lintel	0	Interior	Visually Sound		
			Exterior	Visually Sound		
K5/6	Lintel	0	Interior	Visually Sound		
			Exterior	Visually Sound		
K6/7	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (3no)		
J/K7	Lintel	0	Interior	Moderate Vertical Cracking - ()		
			Exterior	Isolated Fine Vertical Cracking - (1no)		
H/J7	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Fine Vertical Cracking - (1no)		
G/H7	Lintel	0	Interior	Visually Sound		
			Exterior	Isolated Fine Vertical Cracking - (1no)		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
F/G7	Lintel	0	Interior	Mechanical Damage		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
E/F7	Lintel	0	Interior	Fine Vertical Cracking - (3no)		
			Exterior	Visually Sound		
D/E7	Lintel	0	Interior	Visually Sound		
			Exterior	Visually Sound		

Element Ref:	Type	Level	Face	Notes	Face-by-Face RAG Rating	Combined RAG Rating
A3/4	Lintel	1	Interior	Isolated Heavy Vertical Cracking - ()		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
A2/3	Lintel	1	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (5no)		
A1/2	Lintel	1	Interior	Isolated Heavy Vertical Cracking & Localised Spall - ()		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		
A/B1	Lintel	1	Interior	Heavy Vertical Cracking - (2no)		
			Exterior	Visually Sound		
B/C1	Lintel	1	Interior	Moderate Vertical Cracking - (2no)		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
C/D1	Lintel	1	Interior	Isolated Heavy Vertical Cracking - ()		
			Exterior	Visually Sound		
D/E1	Lintel	1	Interior	Isolated Heavy Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical & Horizontal Cracking - (3no)		
E/F1	Lintel	1	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
F/G1	Lintel	1	Interior	Visually Sound		
			Exterior	Visually Sound		
G/H1	Lintel	1	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Isolated Fine Vertical Cracking - (3no)		
H/J1	Lintel	1	Interior	Isolated Heavy Vertical Cracking - (3no)		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
J/K1	Lintel	1	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
K/L1	Lintel	1	Interior	Isolated Heavy Vertical Cracking - ()		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
L/M1	Lintel	1	Interior	Moderate Vertical Cracking - (1no)		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
M/N1	Lintel	1	Interior	Obscured from view		
			Exterior	Isolated Heavy & Moderate Vertical Cracking - (4no)		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
N1/2	Lintel	1	Interior	Obscured from view		
			Exterior	Crazing of Render		
N2/3	Lintel	1	Interior	Isolated Heavy Vertical & Horizontal Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (4no)		
N3/4	Lintel	1	Interior	Moderate Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		
N4/5	Lintel	1	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		
N5/6	Lintel	1	Interior	Visually Sound		
			Exterior	Visually Sound		
N6/7	Lintel	1	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Isolated Heavy Vertical Cracking - (4no)		
N7/8	Lintel	1	Interior	Isolated Moderate Vertical Cracking - (1no)		
			Exterior	Isolated Heavy Vertical Cracking - (1no)		
N8/9	Lintel	1	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		
N9/10	Lintel	1	Interior	Isolated Moderate Vertical Cracking - (2no)		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		
M/N10	Lintel	1	Interior	Isolated Moderate Vertical Cracking - (3no)		
			Exterior	Visually Sound		
L/M10	Lintel	1	Interior	Visually Sound		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		
K/L10	Lintel	1	Interior	Visually Sound		
			Exterior	Visually Sound		
J/K10	Lintel	1	Interior	Isolated Moderate Vertical Cracking - (1no)		
			Exterior	Isolated Fine Vertical Cracking - (1no)		
H/J10	Lintel	1	Interior	Isolated Heavy Vertical Cracking - (1no)		
			Exterior	Visually Sound		
G/H10	Lintel	1	Interior	Isolated Heavy Vertical Cracking - (4no)		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
F/G10	Lintel	1	Interior	Isolated Heavy Vertical Cracking - (3no)		
			Exterior	Visually Sound		
E/F10	Lintel	1	Interior	Isolated Heavy Vertical Cracking - (3no)		
			Exterior	Visually Sound		
D/E10	Lintel	1	Interior	Isolated Heavy Vertical Cracking - (2no)		
			Exterior	Visually Sound		
D/E4	Lintel	1	Interior	Isolated Moderate Vertical Cracking - (2no)		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
E/F4	Lintel	1	Interior	Isolated Heavy Vertical Cracking - (3no)		
			Exterior	Isolated Moderate Vertical Cracking - (3no)		
F/G4	Lintel	1	Interior	Isolated Moderate Vertical Cracking - (3no)		
			Exterior	Isolated Moderate Vertical Cracking - (4no)		
G/H4	Lintel	1	Interior	Isolated Moderate Vertical Cracking - (2no)		
			Exterior	Visually Sound		
H/J4	Lintel	1	Interior	Isolated Moderate Vertical Cracking - (4no)		
			Exterior	Isolated Fine Vertical Cracking - (1no)		
J/K4	Lintel	1	Interior	Isolated Moderate Vertical Cracking - (2no)		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
K4/5	Lintel	1	Interior	Visually Sound		
			Exterior	Visually Sound		
K5/6	Lintel	1	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
K6/7	Lintel	1	Interior	Visually Sound		
			Exterior	Visually Sound		
J/K7	Lintel	1	Interior	Isolated Moderate Vertical Cracking - (2no)		
			Exterior	Isolated Fine Vertical Cracking - (2no)		
H/J7	Lintel	1	Interior	Isolated Heavy Vertical Cracking - (3no)		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		
G/H7	Lintel	1	Interior	Obscured from view		
			Exterior	Isolated Heavy Vertical Cracking - (3no)		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
F/G7	Lintel	1	Interior	Obscured from view		
			Exterior	Isolated Heavy Vertical Cracking - (2no)		
E/F7	Lintel	1	Interior	Isolated Heavy Vertical Cracking - (3no)		
			Exterior	Isolated Moderate Vertical Cracking - (3no)		
D/E7	Lintel	1	Interior	Isolated Heavy Vertical Cracking - (1no)		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		

Element Ref:	Type	Level	Face	Notes	Face-by-Face RAG Rating	Combined RAG Rating
A3/4	Lintel	2	Interior	Visually Sound		
			Exterior	Visually Sound		
A2/3	Lintel	2	Interior	Isolated Moderate Vertical Cracking - (2no)		
			Exterior	Visually Sound		
A1/2	Lintel	2	Interior	Isolated Heavy Horizontal Cracking - (1no)		
			Exterior	Visually Sound		
A/B1	Lintel	2	Interior	Isolated Moderate Vertical Cracking - (2no)		
			Exterior	Visually Sound		
B/C1	Lintel	2	Interior	Isolated Moderate Vertical Cracking - (2no)		
			Exterior	Visually Sound		
C/D1	Lintel	2	Interior	Isolated Fine Vertical Cracking - (3no)		
			Exterior	Visually Sound		
D/E1	Lintel	2	Interior	Isolated Heavy Vertical Cracking - ()		
			Exterior	Visually Sound		
E/F1	Lintel	2	Interior	Isolated Moderate Vertical Cracking - ()		
			Exterior	Visually Sound		
F/G1	Lintel	2	Interior	Isolated Moderate Vertical Cracking - (2no)		
			Exterior	Visually Sound		
G/H1	Lintel	2	Interior	Isolated Moderate Vertical Cracking - (3no)		
			Exterior	Visually Sound		
H/J1	Lintel	2	Interior	Isolated Heavy Vertical Cracking - (2no)		
			Exterior	Visually Sound		
J/K1	Lintel	2	Interior	Isolated Heavy Vertical Cracking - (2no)		
			Exterior	Visually Sound		
K/L1	Lintel	2	Interior	Visually Sound		
			Exterior	Visually Sound		
L/M1	Lintel	2	Interior	Isolated Moderate Horizontal Cracking - (1no)		
			Exterior	Visually Sound		
M/N1	Lintel	2	Interior	Isolated Heavy Vertical Cracking - ()		
			Exterior	Visually Sound		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
N1/2	Lintel	2	Interior	Visually Sound		
			Exterior	Visually Sound		
N2/3	Lintel	2	Interior	Obscured from view		
			Exterior	Visually Sound		
N3/4	Lintel	2	Interior	Isolated Heavy Vertical Cracking - (1no)		
			Exterior	Visually Sound		
N4/5	Lintel	2	Interior	Isolated Heavy Vertical Cracking - (2no)		
			Exterior	Visually Sound		
N5/6	Lintel	2	Interior	Isolated Moderate Vertical Cracking - (2no)		
			Exterior	Visually Sound		
N6/7	Lintel	2	Interior	Isolated Heavy Vertical & Horizontal Cracking - (3no)		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
N7/8	Lintel	2	Interior	Isolated Moderate Vertical Cracking - (1no)		
			Exterior	Visually Sound		
N8/9	Lintel	2	Interior	Isolated Moderate Vertical Cracking - (1no)		
			Exterior	Visually Sound		
N9/10	Lintel	2	Interior	Heavy Horizontal Cracking - ()		
			Exterior	Visually Sound		
M/N10	Lintel	2	Interior	Heavy Vertical & Horizontal Cracking - (2no)		
			Exterior	Visually Sound		
L/M10	Lintel	2	Interior	Heavy Vertical Cracking - (2no)		
			Exterior	Localised Spalled Concrete - (4no)		
K/L10	Lintel	2	Interior	Visually Sound		
			Exterior	Visually Sound		
J/K10	Lintel	2	Interior	Isolated Fine Vertical Cracking - (2no)		
			Exterior	Localised Spalled Concrete - (1no)		
H/J10	Lintel	2	Interior	Visually Sound		
			Exterior	Localised Spalled Concrete - (1no)		
G/H10	Lintel	2	Interior	Visually Sound		
			Exterior	Visually Sound		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
F/G10	Lintel	2	Interior	Isolated Fine Vertical Cracking - (1no)		
			Exterior	Visually Sound		
E/F10	Lintel	2	Interior	Visually Sound		
			Exterior	Visually Sound		
D/E10	Lintel	2	Interior	Visually Sound		
			Exterior	Localised Spalled Concrete - (1no)		
D/E4	Lintel	2	Interior	Isolated Fine Vertical Cracking - (1no)		
			Exterior	Visually Sound		
E/F4	Lintel	2	Interior	Isolated Fine Vertical Cracking - (2no)		
			Exterior	Isolated Moderate Vertical Cracking - (3no)		
F/G4	Lintel	2	Interior	Isolated Fine Vertical Cracking - (2no)		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
G/H4	Lintel	2	Interior	Visually Sound		
			Exterior	Visually Sound		
H/J4	Lintel	2	Interior	Isolated Fine Vertical Cracking - (2no)		
			Exterior	Visually Sound		
J/K4	Lintel	2	Interior	Isolated Heavy & Moderate Vertical Cracking - (3no)		
			Exterior	Visually Sound		
K4/5	Lintel	2	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
K5/6	Lintel	2	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (1no)		
K6/7	Lintel	2	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
J/K7	Lintel	2	Interior	Visually Sound		
			Exterior	Isolated Fine Vertical Cracking - (1no)		
H/J7	Lintel	2	Interior	Isolated Moderate Vertical Cracking - (3no)		
			Exterior	Isolated Heavy Vertical Cracking - (5no)		
G/H7	Lintel	2	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		

Element Ref:	Type	Level	Face	Notes	Face-by- Face RAG Rating	Combined RAG Rating
F/G7	Lintel	2	Interior	Isolated Fine Vertical Cracking - (3no)		
			Exterior	Isolated Fine Vertical Cracking - (2no)		
E/F7	Lintel	2	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (2no)		
D/E7	Lintel	2	Interior	Visually Sound		
			Exterior	Isolated Moderate Vertical Cracking - (3no)		

Appendix B – Condition Rating Plan Drawings

Notes:

Survey was undertaken in May 2020.

Drawing is not to scale.

This drawing is for indicative purposes only.

- Legend:**
- No obvious defects observed
 - Fine to moderate cracking of brickwork or concrete observed. Evidence of saturation observed - increased likelihood of corrosion of embedded steel.
 - Heavy cracking of brickwork or concrete observed. Bulging or displacement of brickwork observed. Spalled or delaminated concrete observed.
 - Heavy cracking or spalling observed on external face.
 - Heavy cracking or spalling observed on internal face.



Ground Floor

P01	JK	For Issue	Jun20
P00	ERM	Draft for Comment	Jun20
Rev	Chk'd by	Amendment	Date
For comment	As constructed		
For tender	Inspection		✓
For construction	Other		
Client CWTC Multi Family ICAV 70 Sir John Rogerson's Quay Dublin 2 D02 R296			
Project Ref. 19575			
Project Name Player Wills Factory Column & Lintel Remediation			
Drawing Title Condition Survey Ground Floor			
Date:	17/06/2020	Drawn by:	ERM
Paper Size:	A3	Checked by:	JK
Scale:	N/A	Approved by:	EMcK
 Unit A3, Harbour Court, Sydenham Business Park, 5 Heron Road, Belfast, BT3 9HB Tel: +44(0) 28 9073 8100 Email: info@mcfarlandconsulting.co.uk www.mcfarlandconsulting.co.uk			
Drawing No. 19575-MCL-00-DR-J-0001			Rev P01

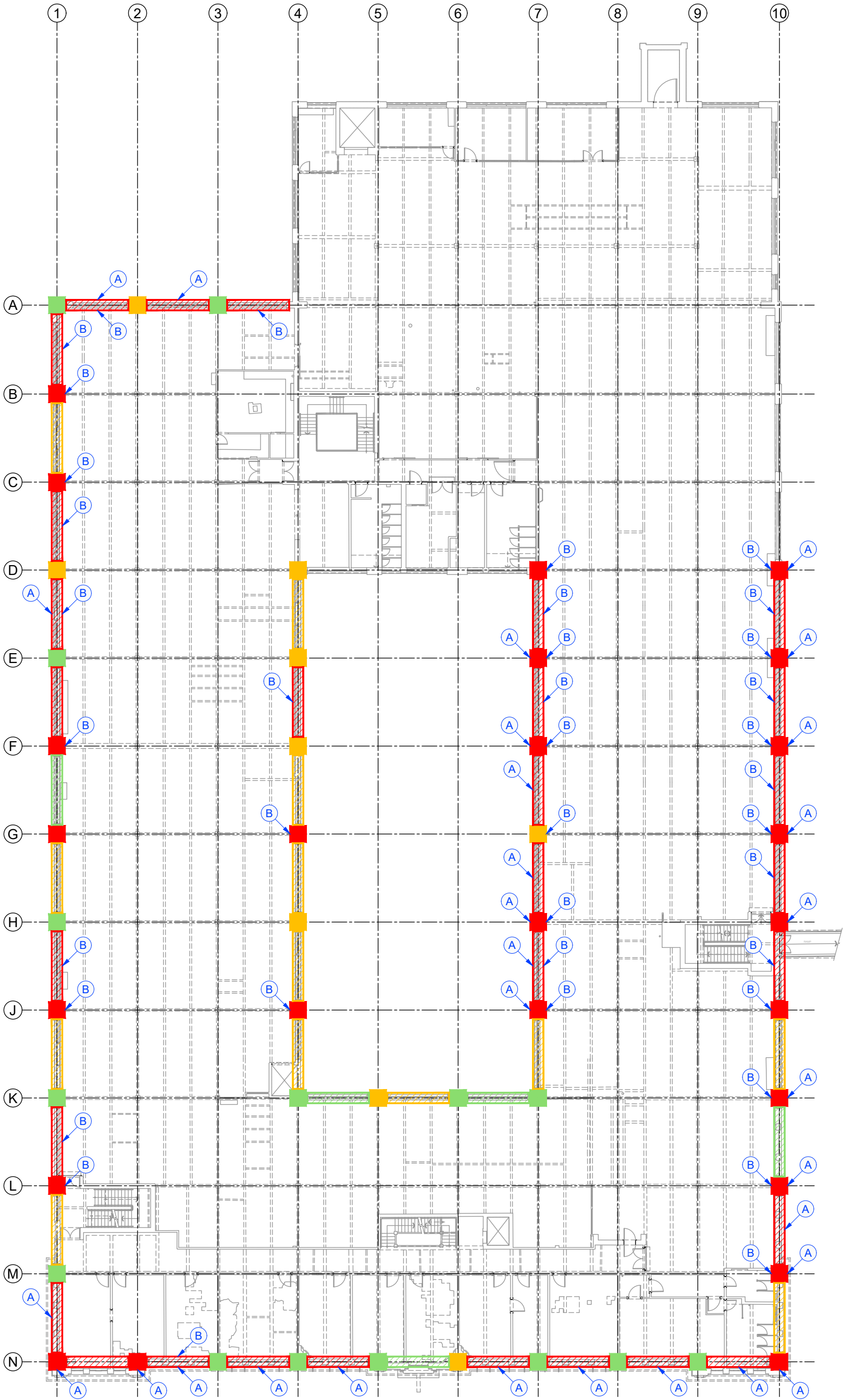
Notes:

Survey was undertaken in May 2020.

Drawing is not to scale.

This drawing is for indicative purposes only.

- Legend:**
- No obvious defects observed
 - Fine to moderate cracking of brickwork or concrete observed. Evidence of saturation observed - increased likelihood of corrosion of embedded steel.
 - Heavy cracking of brickwork or concrete observed. Bulging or displacement of brickwork observed. Spalled or delaminated concrete observed.
 - Heavy cracking or spalling observed on external face.
 - Heavy cracking or spalling observed on internal face.



First Floor

P01	JK	For Issue	Jun20
P00	ERM	Draft for Comment	Jun20
Rev	Chk'd by	Amendment	Date
For comment		As constructed	
For tender		Inspection	✓
For construction		Other	
Client			
CWTC Multi Family ICAV 70 Sir John Rogerson's Quay Dublin 2 D02 R296			
Project Ref.			
19575			
Project Name			
Player Wills Factory Column & Lintel Remediation			
Drawing Title			
Condition Survey First Floor			
Date:	17/06/2020	Drawn by:	ERM
Paper Size:	A3	Checked by:	JK
Scale:	N/A	Approved by:	EMcK
McFarland Consulting			
Unit A3, Harbour Court, Sydenham Business Park, 5 Heron Road, Belfast, BT3 9HB Tel: +44(0) 28 9073 8100 Email: info@mcfarlandconsulting.co.uk www.mcfarlandconsulting.co.uk			
Drawing No.			Rev
19575-MCL-01-DR-J-0002			P01

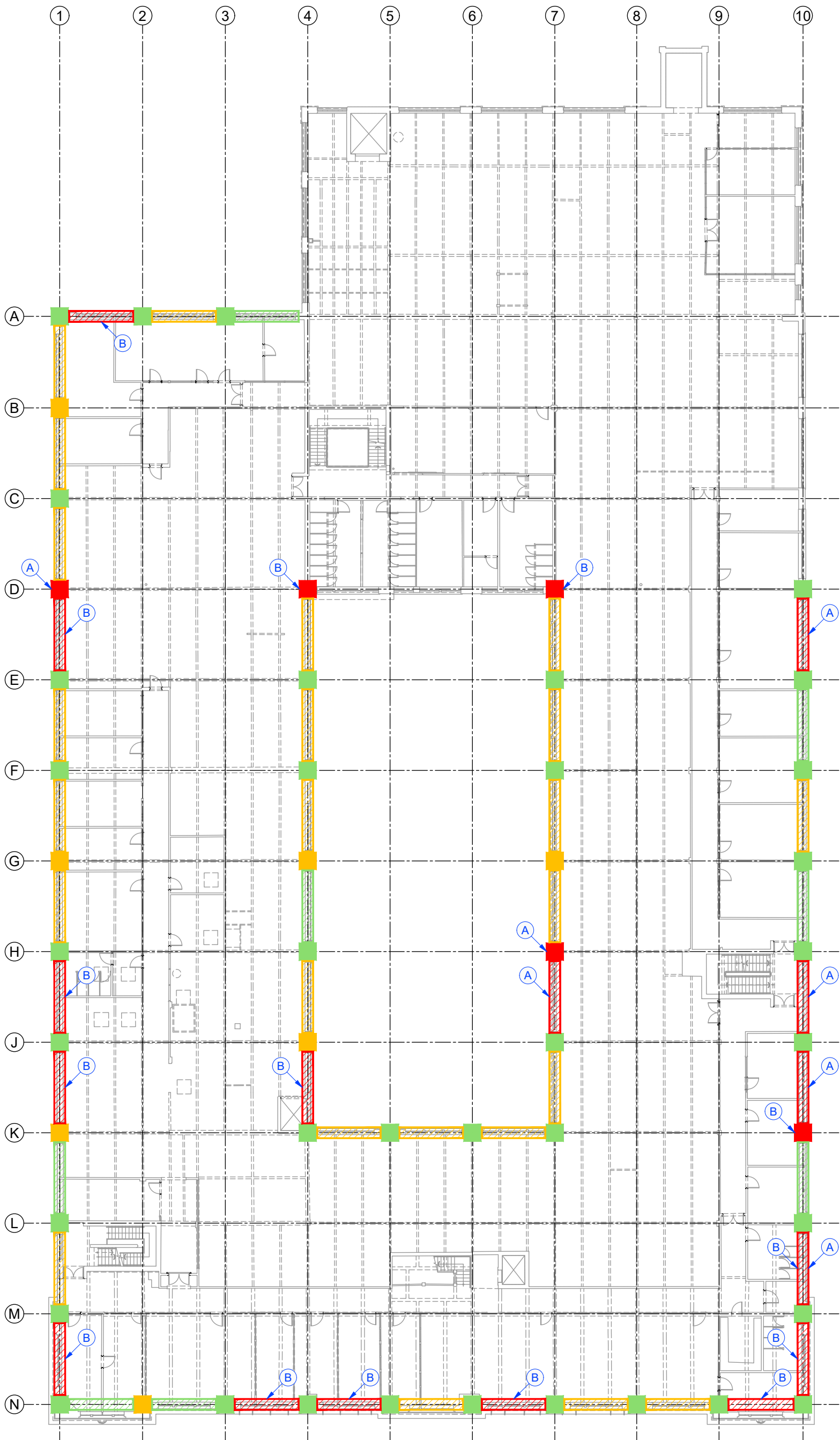
Notes:

Survey was undertaken in May 2020.

Drawing is not to scale.

This drawing is for indicative purposes only.

- Legend:**
- No obvious defects observed
 - Fine to moderate cracking of brickwork or concrete observed. Evidence of saturation observed - increased likelihood of corrosion of embedded steel.
 - Heavy cracking of brickwork or concrete observed. Bulging or displacement of brickwork observed. Spalled or delaminated concrete observed.
 - Heavy cracking or spalling observed on external face.
 - Heavy cracking or spalling observed on internal face.



Second Floor

P01	JK	For Issue	Jun20
P00	ERM	Draft for Comment	Jun20
Rev	Chk'd by	Amendment	Date
For comment		As constructed	
For tender		Inspection	✓
For construction		Other	
Client CWTC Multi Family ICAV 70 Sir John Rogerson's Quay Dublin 2 D02 R296			
Project Ref. 19575			
Project Name Player Wills Factory Column & Lintel Remediation			
Drawing Title Condition Survey Second Floor			
Date:	17/06/2020	Drawn by:	ERM
Paper Size:	A3	Checked by:	JK
Scale:	N/A	Approved by:	EMcK
 Unit A3, Harbour Court, Sydenham Business Park, 5 Heron Road, Belfast, BT3 9HB Tel: +44(0) 28 9073 8100 Email: info@mcfarlandconsulting.co.uk www.mcfarlandconsulting.co.uk			
Drawing No. 19575-MCL-02-DR-J-0003			Rev P01

Appendix F

Load Test Solutions Material Testing

Report 1510-3

Steel
Investigations at
former Player
Wills Factory

22/05/2020



LOAD TEST
SOLUTIONS
Structural Testing Specialists

CONTENTS

1. INTRODUCTION
2. SCOPE OF WORK
3. FINDINGS
4. CONCLUSION

Appendices

- APPENDIX A PHOTOGRAPHS
- APPENDIX B DRAWINGS
- APPENDIX C STEEL HARDNESS TEST RESULTS
- APPENDIX D TENSILE TEST RESULTS
- APPENDIX E CHEMICAL COMPOSITION RESULTS

1. INTRODUCTION

Load Test Solutions was requested by Barrett Mahony Consulting Engineers on behalf of their client to carry out steel investigations and testing at the former Player Wills Factory, South Circular Rd, Dublin 8.

This report presents the findings of the testing and investigation.

2. SCOPE OF WORK

The scope of the works is to determine the current condition of steel within the structure through a programme of testing commensurate with testing and inspection techniques used on structures of a similar nature.

The following table shows the testing and examination schedule:

Table 1 Test Quantities

Test	Beam	Column	Slab reinforcing
Tensile strength	7	8	17
Steel Hardness	15	6	N/A
Steel diameter	N/A	N/A	7
Chemical composition	2	3	3
Metallographic examination	0	1	0

2.1 THE STRUCTURE

The structure on site consists of a steel and reinforced concrete structure.

3. FINDINGS OF STRUCTURAL SURVEYS

The findings of the investigations are detailed below.

A photographic record is provided in Appendix A and drawings of the test areas and locations are included in Appendix B.

Site test results are given in Appendix C

Laboratory testing results are given in Appendix D

3.1 STEEL THICKNESS MEASUREMENTS

A measurement of the thickness of reinforcing steel was made at the slab breakout areas. An additional measurement was recorded for reinforcing steel in a window head beam.

Measurements are noted on the drawings in Appendix B.

3.2 STEEL HARDNESS TESTS

Hardness testing was carried out on-site using the Proceq Equitip 3 portable hardness tester.



Location	Min HV (Vickers)	Max HV (Vickers)	Mean HV (Vickers)
First floor main beam	99	183	133
First floor main beam	112	174	141
First floor main beam	102	162	128
First floor sec beam	84	105	91
First floor sec beam	89	137	118
First floor u column	97	149	121
First floor cast column	116	174	142
Second floor main beam	101	160	129
Second floor main beam	93	108	99
Second floor main beam	128	173	145
Second floor sec beam	86	159	108
Second floor sec beam	100	120	109
Second floor u column	99	182	143
Second floor rivet column	93	164	123
Third floor main beam	100	179	125
Third floor main beam	91	182	120
Third floor main beam	99	159	110
Third floor sec beam	86	145	105
Third floor sec beam	86	102	94
Third floor u column	84	105	91
Third floor u column	86	137	108

3.3 TENSILE STRENGTH TESTS

Tensile strength tests were carried out by Sandberg LLP in accordance with ISO 6892-1:2016 B

Test results are listed in Appendix D

3.4 CHEMICAL COMPOSITION TESTS

Chemical composition tests were carried out by Sandberg LLP and compared to the relevant steel standards for assessment.

Test results are listed in Appendix E

Appendix A

Photographs





Beam Sample



Column Sample



Slab Reinforcing Steel





Roof Slab Reinforcing



Beam above windows reinforcing steel

Appendix B

Drawings



NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS & ARCHITECTS DRAWINGS. FIGURED DIMENSIONS ONLY (NOT SCALING) TO BE USED. WHERE A CONFLICT OF INFORMATION EXISTS OR IF IN ANY DOUBT - ASK.
- CONSULTANTS TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.

BUILDING SURVEY

THE SURVEYOR SHALL CONFIRM THE BOTTOM FLANGE WIDTH AND THICKNESS OF ALL STEEL BEAMS ON ALL LEVELS AND INCLUDE THIS INFORMATION ON THE SURVEY. THE SURVEYOR SHALL CONFIRM ALL COLUMN SIZES ON ALL LEVELS AND INCLUDE THIS INFORMATION ON THE SURVEY. UNIVERSAL BEAM AND COLUMN SECTION FLANGE THICKNESSES SHALL ALSO BE INCLUDED

CONDITION SURVEY

A CONDITION SCHEDULE OF THE STRUCTURE SHALL BE CARRIED TO FACILITATE IDENTIFICATION AND TENDERING OF RECTIFICATION WORKS TO STRUCTURE TO BE RETAINED. THE SURVEY IS TO FOCUS ON LOADBEARING ELEMENTS OF STRUCTURE - SLABS, BEAMS, COLUMNS AND MASONRY OR CONCRETE WALLS. THE SURVEY IS TO BE CARRIED OUT ON A GRID BASIS THROUGHOUT THE BUILDING AND SHALL INCLUDE BOTH PHOTOGRAPHS AND DESCRIPTIONS

OPENING UP WORKS SCHEDULE

NUMBER	TITLE	DESCRIPTION
1	SLAB EXPOSURE 4 No. 2 No.	BREAK OUT 500MM*500MM AREA OF SLAB AT MIDSPAN BETWEEN BEAMS. DO NOT CUT REINFORCEMENT. CONFIRM SLAB THICKNESS AND REINFORCEMENT DETAILS - TOP AND BOTTOM.
2	RING BEAM EXPOSURE 2No.	REMOVE CONCRETE COVER OVER A LENGTH OF 300MM OFF THE INTERNAL EDGE AND ACROSS BASE OF THE BEAM AT 1M OFF MASONRY PIER. CONFIRM COVER DEPTH, AND REINFORCEMENT DETAILS
3	PILOT HOLES TO INTERNAL STEEL COLUMNS 4No.	DRILL A PILOT HOLE, 10MM DIAMETER THROUGH ONE SIDE OF THE COLUMN AT A HEIGHT OF 300MM. CONFIRM WALL THICKNESS
4	CONFIRMATION OF BEAM LAYOUT 3No.	REMOVE CEILING AS NECESSARY TO CONFIRM SECONDARY BEAM ARRANGEMENT MATCHES MAIN GRID
5	CONFIRM IF BEAMS ARE CONCRETE ENCASED STEEL 2 No.	DRILL PILOT HOLES IN DOWNSTAND BEAM AT MID-DEPTH WITH 10MM MASONRY DRILL BIT. CONFIRM IF BEAM IS CONCRETE OR ENCASED STEEL. IF CONCRETE, REMOVE COVER CONCRETE OVER 300MM LENGTH ACROSS BASE AND ONE SIDE TO EXPOSE REINFORCEMENT. CONFIRM ALL DIMENSIONS. IF STEEL, EXPOSE BOTTOM FLANGE AND CONFIRM BEAM DEPTH, FLANGE THICKNESS AND WIDTH.
6	BRICK COMPRESSIVE TEST 2 No.	REMOVE 100G BRICKS FROM BELOW WINDOW, ADJACENT TO PIER, AND CARRY OUT COMPRESSIVE TESTING ON SAME
7	SLAB CONCRETE COMPRESSIVE TEST 4 No. 2 No.	CORES TO BE TAKEN THROUGH SLAB, CLEAR OF BEAMS. CARRY OUT COMPRESSIVE TESTS ON SAME
8	CONFIRM IF MASONRY WALLS ARE LOADBEARING OR INFILL 5 No.	DRILL 10MM HOLES THROUGH WALL 150MM BELOW FIRST FLOOR SLAB SOFFIT WITH A MASONRY BIT TO CONFIRM IF BEAM IS PRESENT. CONFIRM COLUMN LOCATIONS IN WALL, IF PRESENT
REPAIR CONCRETE COVER, WHERE REMOVED, WITH SIKA CONCRETE REPAIR MORTAR AND PRIMERS. PROVIDE SAFETY COVERS AT SLAB EXPOSURE LOCATIONS		

REVISED SCOPE. SEE BELOW

ALREADY COMPLETE

ALREADY COMPLETE

NOT REQUIRED

ALREADY COMPLETE

A - STRIP SAMPLE TO BE TAKEN FROM WEB OF COLUMN. TO BE CARRIED OUT BY LOAD TEST SOLUTIONS. 1 NUMBER.

B - CORE SAMPLE THROUGH CIRCULAR COLUMN BY UNITED METALS TO BE PROVIDED TO LOAD TEST SOLUTIONS FOR TESTING. 1 NUMBER.

C - SLAB REINFORCEMENT SAMPLE TO BE TAKEN FROM SLAB EXPOSURE AREA FOR TENSILE TEST. SAMPLE SIZE TO BE SUFFICIENT TO CARRY OUT THREE NUMBER TENSILE TESTS ON THE REINFORCEMENT.

D - STEEL BEAM WEB SAMPLES. TWO NUMBER. ONE FROM PRIMARY BEAM. ONE FROM SECONDARY BEAM AT AREA MARKED D.

REVISED 28.01.2020

ISSUE	DATE	DESCRIPTION	ISSUED BY	DATE
DRAWING STAGE			PRELIMINARY	
 Barratt Manning Consulting Engineers, Civil, Structural, Project Management E-mail: bmca@barrattmann.co.uk Web: www.bmca.co.uk Dublin Office: Sandwich House, 50-54 Lower Sandwith Street, Dublin 2, Ireland. Tel: 011 877 3300 Fax: 011 877 3184 London Office: 12 Mill Street, London SE1 2AY, United Kingdom Tel: 02044 84 9433 Fax: 02044 84 9432 				
CLIENT				
CWTC MULTI FAMILY ICAV ACTING SOLELY IN RESPECT OF ITS SUB FUND DBTR SCR1 FUND				
PROJECT TITLE			BM PROJECT No.	
PLAYER WILLS FACTORY			19.117	
MODEL REFERENCE			MODEL REV. SUITABILITY	
DRAWING TITLE			DRAWING No.	
PLAYER WILLS FACTORY OPENING UP WORKS FIRST FLOOR PLAN			P01	
DRAWING No.			ISSUE	
PWF-BMD-00-00-S-4101			P01	

NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS & ARCHITECTS DRAWINGS FIGURED DIMENSIONS ONLY (NOT SCALING) TO BE USED, WHERE A CONFLICT OF INFORMATION EXISTS OR IF IN ANY DOUBT - ASK.
- CONSULTANTS TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.

BUILDING SURVEY

THE SURVEYOR SHALL CONFIRM THE BOTTOM FLANGE WIDTH AND THICKNESS OF ALL STEEL BEAMS ON ALL LEVELS AND INCLUDE THIS INFORMATION ON THE SURVEY. THE SURVEYOR SHALL CONFIRM ALL COLUMN SIZES ON ALL LEVELS AND INCLUDE THIS INFORMATION ON THE SURVEY. UNIVERSAL BEAM AND COLUMN SECTION FLANGE THICKNESSES SHALL ALSO BE INCLUDED

CONDITION SURVEY

A CONDITION SCHEDULE OF THE STRUCTURE SHALL BE CARRIED TO FACILITATE IDENTIFICATION AND TENDERING OF RECTIFICATION WORKS TO STRUCTURE TO BE RETAINED. THE SURVEY IS TO FOCUS ON LOADBEARING ELEMENTS OF STRUCTURE - SLABS, BEAMS, COLUMNS AND MASONRY OR CONCRETE WALLS. THE SURVEY IS TO BE CARRIED OUT ON A GRID BASIS THROUGHOUT THE BUILDING AND SHALL INCLUDE BOTH PHOTOGRAPHS AND DESCRIPTIONS

OPENING UP WORKS SCHEDULE

NUMBER	TITLE	DESCRIPTION
1	SLAB EXPOSURE 4 No. 2 No.	BREAK OUT 500MM*500MM AREA OF SLAB AT MIDSPAN BETWEEN BEAMS. DO NOT CUT REINFORCEMENT. CONFIRM SLAB THICKNESS AND REINFORCEMENT DETAILS - TOP AND BOTTOM.
2	RING BEAM EXPOSURE 2No.	REMOVE CONCRETE COVER OVER A LENGTH OF 300MM DOWN THE INTERNAL FACE AND ACROSS BASE OF THE BEAM AT 1M OFF THE MASONRY PIER. CONFIRM COVER DEPTH, AND REINFORCEMENT DETAILS - TOP AND BOTTOM BARS AND LINKS
3	PILOT HOLES TO INTERNAL STEEL COLUMNS 4No.	DRILL A PILOT HOLE 10MM DIAMETER THROUGH ONE SIDE OF THE COLUMN AT A HEIGHT OF 300MM. CONFIRM WALL THICKNESS
4	CONFIRMATION OF BEAM LAYOUT 2No.	REMOVE CEILING AS NECESSARY TO CONFIRM SECONDARY BEAM ARRANGEMENT MATCHES MAIN GRID
5	CONFIRM IF BEAMS ARE CONCRETE ENCASED STEEL 5 No.	DRILL PILOT HOLES IN DOWNSTAND BEAM AT MID DEPTH WITH 10MM MASONRY DRILL BIT. CONFIRM IF BEAM IS CONCRETE OR ENCASED STEEL. IF CONCRETE, REMOVE COVER CONCRETE OVER 300MM LENGTH ACROSS BASE AND ONE SIDE TO EXPOSE REINFORCEMENT. CONFIRM ALL DIMENSIONS. IF STEEL, EXPOSE BOTTOM FLANGE AND CONFIRM BEAM DEPTH, FLANGE THICKNESS AND WIDTH.
6	BRICK COMPRESSIVE TEST 2 No.	REMOVE 10NO. BRICKS FROM BELOW WINDOW, ADJACENT TO PIER, AND CARRY OUT COMPRESSIVE TESTING ON SAME
7	SLAB CONCRETE COMPRESSIVE TEST 4 No. 2 No.	CORES TO BE TAKEN THROUGH SLAB, CLEAR OF BEAMS. CARRY OUT COMPRESSIVE TESTS ON SAME AND PROVIDE RESULTS
8	CONFIRM IF MASONRY WALLS ARE LOADBEARING OR INFILL 3 No.	DRILL 10MM HOLES THROUGH WALL 150MM BELOW FIRST FLOOR SLAB SOFFIT WITH A MASONRY BIT TO CONFIRM IF BEAM IS PRESENT. CONFIRM COLUMN LOCATIONS IN WALL, IF PRESENT
REPAIR CONCRETE COVER, WHERE REMOVED, WITH SIKA CONCRETE REPAIR MORTAR AND PRIMERS. PROVIDE SAFETY COVERS AT SLAB EXPOSURE LOCATIONS		

REVISED SCOPE. SEE BELOW

ALREADY COMPLETE

ALREADY COMPLETE

NOT REQUIRED

ALREADY COMPLETE

A - STRIP SAMPLE TO BE TAKEN FROM WEB OF COLUMN. TO BE CARRIED OUT BY LOAD TEST SOLUTIONS. 2 NUMBER.

B - CORE SAMPLE THROUGH CIRCULAR COLUMN BY UNITED METALS TO BE PROVIDED TO LOAD TEST SOLUTIONS FOR TESTING. 1 NUMBER.

C - SLAB REINFORCEMENT SAMPLE TO BE TAKEN FOR TENSILE TEST FROM SLAB EXPOSURE AREA. SAMPLE SIZE TO BE SUFFICIENT TO CARRY OUT THREE NUMBER TENSILE TESTS ON THE REINFORCEMENT.

D - THREE NUMBER BEAM WEB SAMPLES, 1 EACH IN THE AREAS MARKED D TO BE TAKEN FROM A BEAM AT THE CEILING OF LEVEL 2 BY LOADTEST SOLUTIONS

REVISED 28.01.2020

ISSUE:	DATE:	DESCRIPTION:	ISSUE:	DATE:	DESCRIPTION:
PRELIMINARY					
BM Barrett Mahony Consulting Engineers, Civil, Structural, Project Management E-mail: bmca@bmca.ie Web: www.bmca.ie					
CLIENT CWTC MULTI FAMILY ICAV ACTING SOLELY IN RESPECT OF ITS SUB FUND DBTR SCR1 FUND					
PROJECT TITLE PLAYER WILL FACTORY			BM PROJECT No. 19.117		
MODEL REFERENCE			MODEL REV. SUITABILITY		
DRAWING TITLE PLAYER WILL FACTORY OPENING UP WORKS SECOND FLOOR PLAN					
DRAWING No. PWF-BMD-00-00-S-4102					
ISSUE P01					



A - SLAB REINFORCEMENT SAMPLES TO BE TAKEN FOR TENSILE TESTS FROM SLAB EXPOSURE AREAS. SAMPLE SIZE TO BE SUFFICIENT TO CARRY OUT NINE (3 AT EACH LOCATION) NUMBER TENSILE TESTS ON THE REINFORCEMENT.

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS & ARCHITECTS DRAWINGS. FIGURED DIMENSIONS ONLY (NOT SCALING) TO BE USED. WHERE A CONFLICT OF INFORMATION EXISTS OR IF IN ANY DOUBT - **ASK**.
2. CONSULTANTS TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.

BUILDING SURVEY

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CONDITION SURVEY

A CONDITION SCHEDULE OF THE STRUCTURE SHALL BE CARRIED TO FACILITATE IDENTIFICATION AND TENDERING OF RECTIFICATION WORKS TO STRUCTURE TO BE RETAINED. THE SURVEY IS TO FOCUS ON LOADBEARING ELEMENTS OF STRUCTURE - SLABS, BEAMS, COLUMNS AND MASONRY OR CONCRETE WALLS. THE SURVEY IS TO BE CARRIED OUT ON A GRID BASIS THROUGHOUT THE BUILDING AND SHALL INCLUDE BOTH PHOTOGRAPHS AND DESCRIPTIONS

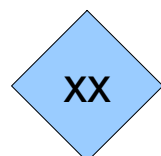
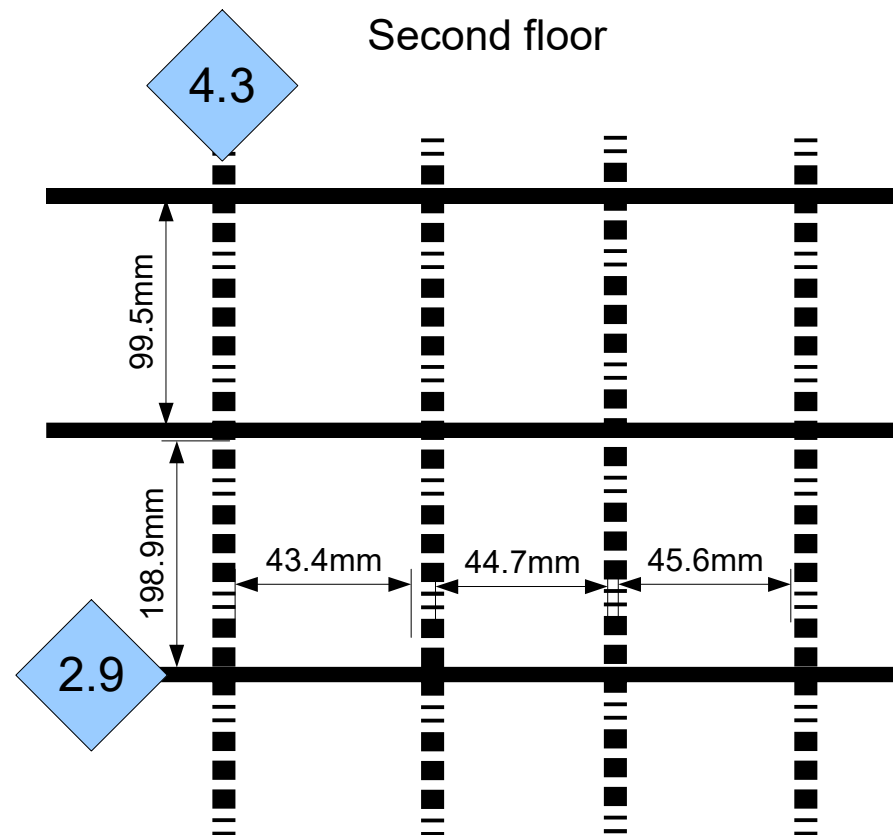
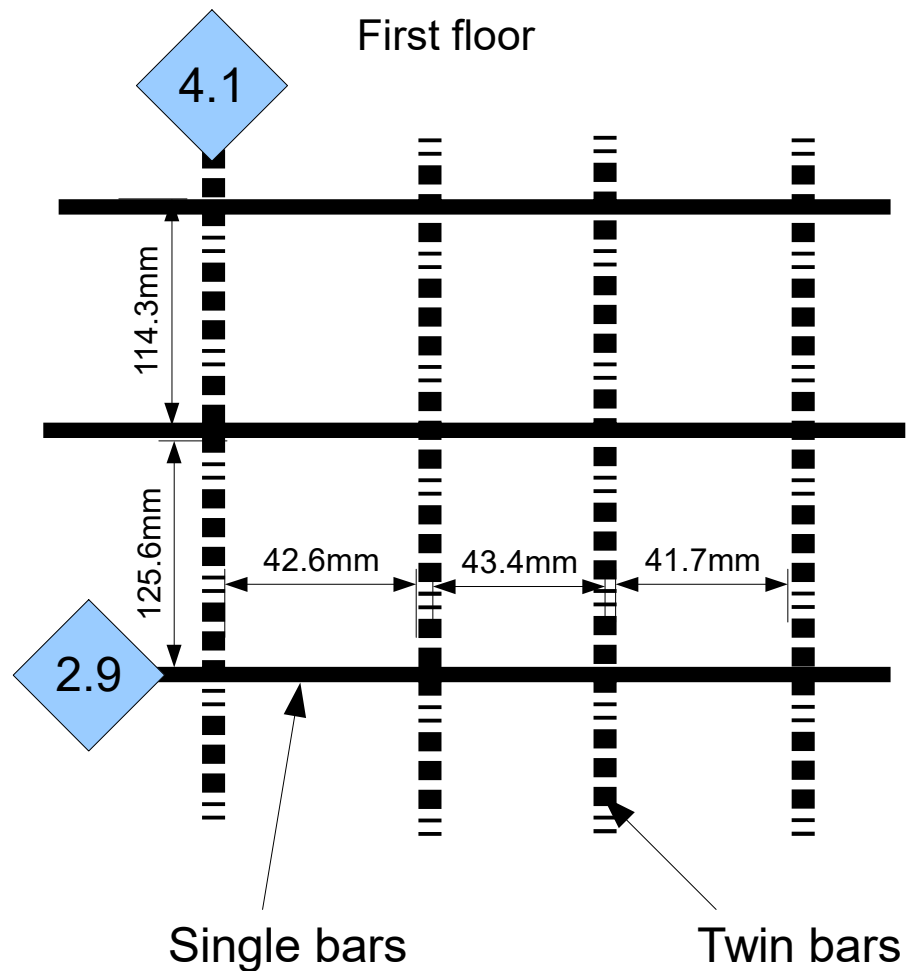
OPENING UP WORKS SCHEDULE

NUMBER	TITLE	DESCRIPTION
1	SLAB EXPOSURE 3 No.	BREAK OUT 500MM*500MM AREA OF SLAB AT MIDSPAN BETWEEN BEAMS BELOW. DO NOT CUT REINFORCEMENT. CONFIRM SLAB THICKNESS AND REINFORCEMENT DETAILS - TOP AND BOTTOM.
2	SLAB CONCRETE COMPRESSIVE TEST 3 No.	CORES TO BE TAKEN THROUGH SLAB, CLEAR OF BEAMS. CARRY OUT COMPRESSIVE TESTS ON SAME

REPAIR CONCRETE COVER, WHERE REMOVED, WITH SIKA CONCRETE REPAIR MORTAR AND PRIMERS.
REINSTATE WATERPROOFING TO ROOF SLAB WHERE EXPOSURES HAVE BEEN CARRIED OUT

REVISED 28.01.2020

ISSUE	DATE	DESCRIPTION	CITY	P.E.
DRAWING STAGE			PRELIMINARY	
BM Dublin Office: Sandwell House, 55-54 Lower Sandwell Street, Dublin 2, Ireland. Tel: (01) 677 5000 Fax: (01) 677 3164 London Office: 12 Mill Street, London SE1 2AY, United Kingdom Tel: (0204) 084 5413 2722 BAFRETTI MAHONY Consulting Engineers, Civil, Structural, Project Management E-mail: bma@bma.ie Web: www.bma.ie				
				
CLIENT CWTC MULTI FAMILY ICAV ACTING SOLELY IN RESPECT OF ITS SUB FUND DBTR SCR1 FUND				
PROJECT TITLE PLAYER WILLS FACTORY			BM PROJECT No. 19.117	
MODEL REFERENCE			MODEL REV	SUITABILITY
DRAWING TITLE THIRD FLOOR PLAN				
DRAWING No. PWF-BMD-00-00-S-4103				ISSUE P01



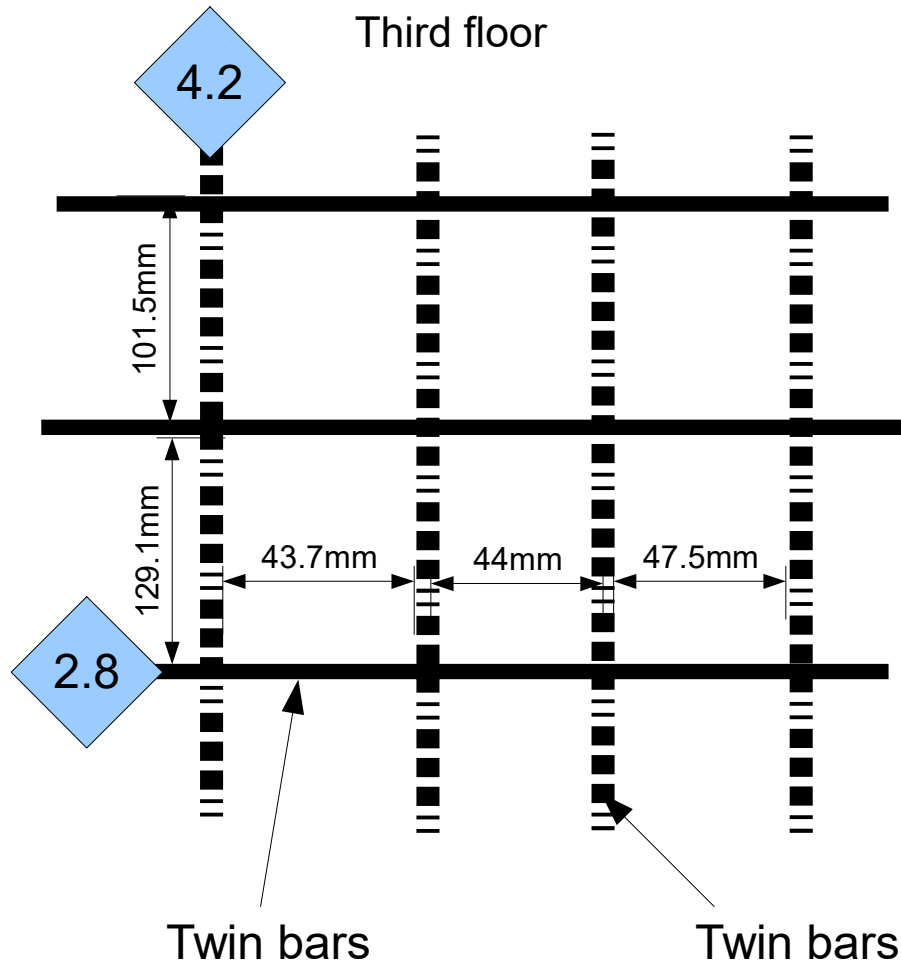
Bar size (mm) per
bar



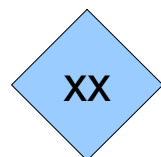
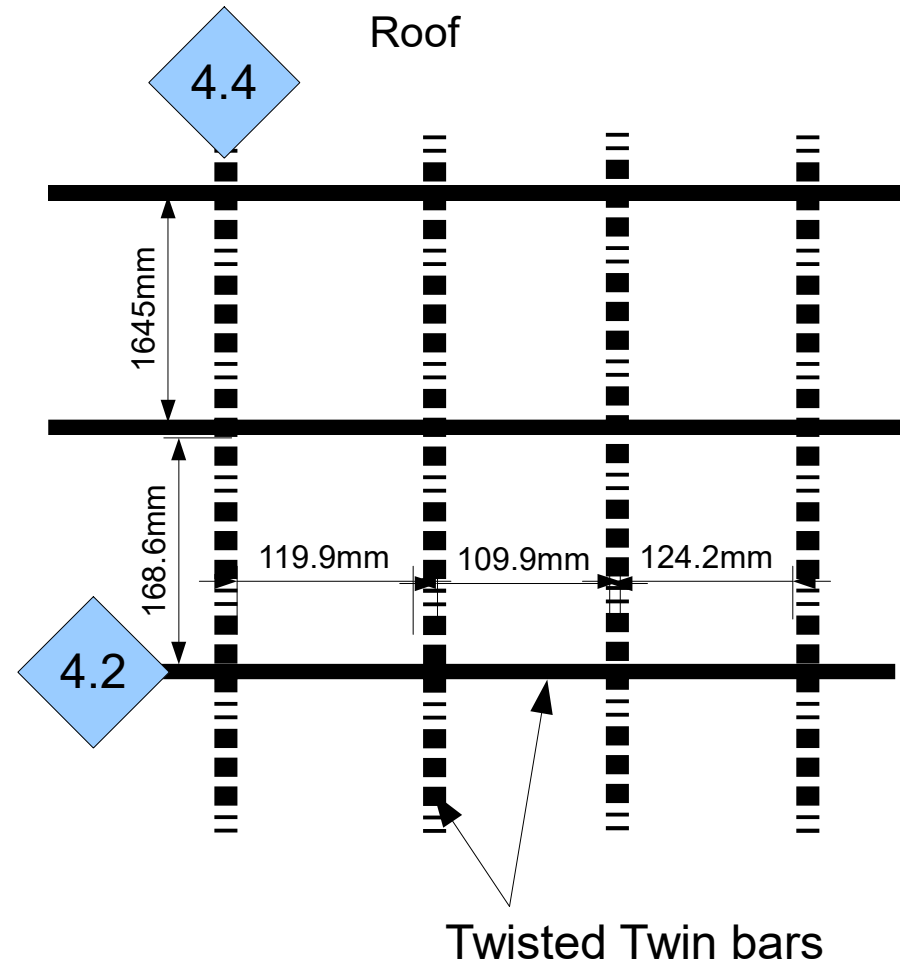
LOAD TEST
SOLUTIONS
Structural Testing Specialists

Drawn By: TF
Job No. 1510
Scale: Not to scale
Date: 27/05/2020

Third floor



Roof

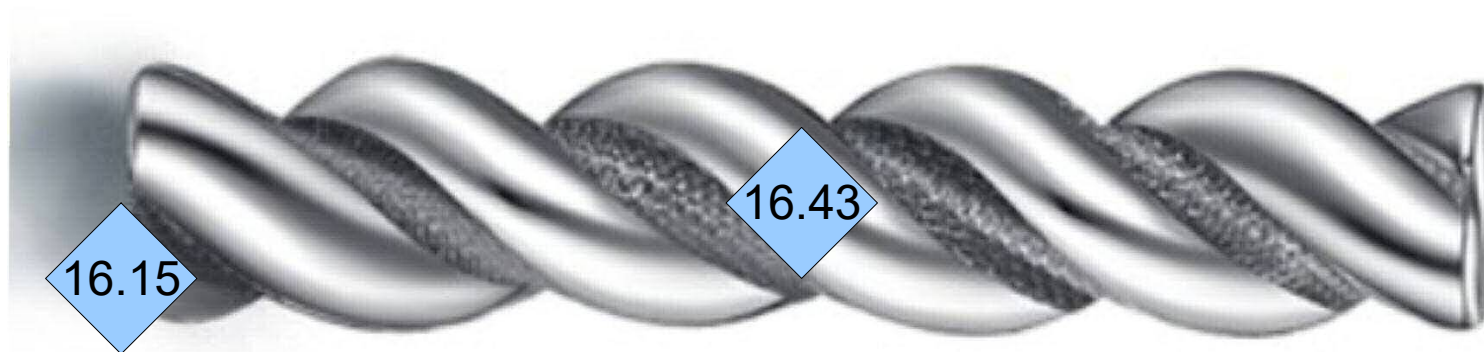


Bar size (mm) per bar

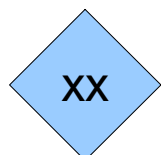


LOAD TEST
SOLUTIONS
Structural Testing Specialists

Drawn By: TF
Job No. 1510
Scale: Not to scale
Date: 27/05/2020



Beam above windows Twisted Twin bars



Bar size (mm) per
bar



LOAD TEST
SOLUTIONS
Structural Testing Specialists

Drawn By: TF
Job No. 1510
Scale: Not to scale
Date: 27/05/2020

Appendix C

Steel Hardness Test Results



Steel Hardness Test Results

Location	Min HV (Vickers)	Max HV (Vickers)	Mean HV (Vickers)
First floor main beam	99	183	133
First floor main beam	112	174	141
First floor main beam	102	162	128
First floor sec beam	84	105	91
First floor sec beam	89	137	118
First floor u column	97	149	121
First floor cast column	116	174	142
Second floor main beam	101	160	129
Second floor main beam	93	108	99
Second floor main beam	128	173	145
Second floor sec beam	86	159	108
Second floor sec beam	100	120	109
Second floor u column	99	182	143
Second floor rivet column	93	164	123
Third floor main beam	100	179	125
Third floor main beam	91	182	120
Third floor main beam	99	159	110
Third floor sec beam	86	145	105
Third floor sec beam	86	102	94
Third floor u column	84	105	91
Third floor u column	86	137	108

Appendix D

Tensile Test Results





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MATERIALS TESTING**TENSILE TEST CERTIFICATE**
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email: ho@sandberg.co.uk
web: www.sandberg.co.uk

Certificate:	66370/M/6	Order Ref:	Proforma No. 2
Samples Received:	13 March 2020	Tested By:	AT
Test Date:	29 April 2020	Test Procedure:	M10/3/3
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.		

Specimen Reference		Area mm ²	Upper Yield		Ultimate Tensile		Elongation %
Met lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MA 324	PB1 - Beam Web. 1 st Floor	28.65	7.60	266*	14.64	511	29.0
MA 325	SB1 - Beam Web. 1 st Floor	28.65	9.38	328	14.24	497	31.5
MA 326	2A - Col Web. 1 st Floor	29.22	8.11	278	12.60	431	37.5
MA 327	1B - Solid Col. 1 st Floor (Cored)	28.94	6.21	215*	12.72	440	16.5
MA 331	2B - Solid Col. 2 nd Floor (Cored)	28.94	5.44	188*	10.56	365	31.5
MA 332	SFSB1 - Beam Web. 2 nd Floor	29.03	9.53	328	13.68	471	35.0
Specification: BS EN 10025-2:2019 Grade S235 Grade S275 Grade S355				235 min 275 min 355 min		360-510 410-560 470-630	26 min 23 min 22 min

Comments:

* Upper yield phenomenon was not exhibited, therefore the 0.2% Proof Stress value has been reported instead.

The tensile properties of sample MA 324 would comply with the requirements for a grade S235 structural steel with the exception of its UTS value.

The tensile properties of samples MA 325, MA 326 and MA 332 would comply with the requirements for a grade S275 structural steel.

Cored samples MA 327 & 331 produced lower 0.2% PS results than anticipated which would not comply with any of the principle structural steel grades. These low results could be consequent of the sample's orientation when removed from the structural element, ie 90 degrees to the rolling direction.

For Sandberg LLP

Date: 4 May 2020

Neale Fetter - Assistant Manager Metallurgy Department

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



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Fax: 020 7565 7100
email: ho@sandberg.co.uk
web: www.sandberg.co.uk

Certificate:	66370/M/7	Order Ref:	Proforma No. 2
Samples Received:	13 March 2020	Tested By:	AT
Test Date:	29 April 2020	Test Procedure:	M10/3/3
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.		

Specimen Reference		Area mm ²	Upper Yield		Ultimate Tensile		Elongation %
Met lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MA 333	SFSB2 - Beam Web. 2 nd Floor	28.94	9.19	318	13.78	476	31.5
MA 334	SFSB3 - Beam Web. 2 nd Floor	28.94	8.12	281	12.28	425	37.5
MA 335	SFC1 - Col Web. 2 nd Floor	29.22	9.80	336	12.78	437	34.0
MA 336	SFC2 - Col Web. 2 nd Floor	29.42	9.96	339	11.76	400	37.5
Specification: BS EN 10025-2:2019 Grade S235 Grade S275 Grade S355				235 min 275 min 355 min		360-510 410-560 470-630	26 min 23 min 22 min

Comments: The tensile properties of samples MA 333, MA 334, MA 335 and MA 336 would comply with the requirements for a grade S275 structural steel with the exception of the UTS value for sample MA 336.

For Sandberg LLP

Date: 4 May 2020

Neale Fetter - Assistant Manager Metallurgy Department

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MATERIALS TESTING**TENSILE TEST CERTIFICATE**
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London SW1W 0EBTel: 020 7565 7000
Fax: 020 7565 7100
email: ho@sandberg.co.uk
web: www.sandberg.co.uk

Certificate:	66370/M/8	Order Ref:	Proforma No. 2
Samples Received:	13 March 2020	Tested By:	NAF
Test Date:	27-28 April 2020	Test Procedure:	M10/3/3
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.		

Specimen Reference		Area mm ²	0.2% Proof Stress		Ultimate Tensile		Elongation %
Met lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MA 328-1	SFS1 - RC Slab. 1 st Floor	12.88	7.62	592	7.76	603	17.5
MA 328-2	SFS1 - RC Slab. 1 st Floor	13.07	7.84	600	8.17	625	17.5
MA 328-3	SFS1 - RC Slab. 1 st Floor	13.07	8.35	639	8.70	665	N/D*
MA 329-1	SFS1 - RC Slab. 2 nd Floor	13.07	8.08	618	8.12	621	15.0
MA 329-2	SFS1 - RC Slab. 2 nd Floor	12.82	8.18	638	8.26	644	15.0
MA 329-3	SFS1 - RC Slab. 2 nd Floor	12.88	7.84	609	8.13	631	17.5

Comments: * Elongation not determined - final fracture occurred outside gauge length.
Results for the above samples of steel reinforcing wire strand were not assessed for strength grade. This was because no specific client specification was supplied or identified for assessment purposes.

For Sandberg LLP

Date: 4 May 2020

Neale Fetter - Assistant Manager Metallurgy Department

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



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email: ho@sandberg.co.uk
web: www.sandberg.co.uk

Certificate:	66370/M/9	Order Ref:	Proforma No. 2
Samples Received:	13 March 2020	Tested By:	NAF
Test Date:	27-28 April 2020	Test Procedure:	M10/3/3
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.		

Specimen Reference		Area mm ²	0.2% Proof Stress		Ultimate Tensile		Elongation %
Met lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MA 330-1	SFS2 - RC Slab. 2 nd Floor	12.95	8.16	630	8.32	643	15.0
MA 330-2	SFS2 - RC Slab. 2 nd Floor	12.82	8.14	635	8.33	650	17.5
MA 330-3	SFS2 - RC Slab. 2 nd Floor	12.38	7.91	639	8.04	650	15.0
MA 337-1	R1 - RC Slab. 3 rd Floor	13.27	7.12	537	8.76	660	15.0
MA 337-2	R1 - RC Slab. 3 rd Floor	13.33	7.12	534	8.82	662	14.0
MA 337-3	R1 - RC Slab. 3 rd Floor	13.14	7.53	573	8.58	653	17.5

Comments: Results for the above samples of steel reinforcing wire strand were not assessed for strength grade. This was because no specific client specification was supplied or identified for assessment purposes.

For Sandberg LLP

Date: 4 May 2020

Neale Fetter - Assistant Manager Metallurgy Department

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.
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web: www.sandberg.co.uk

Certificate:	66370/M/10	Order Ref:	Proforma No. 2
Samples Received:	13 March 2020	Tested By:	NAF
Test Date:	27-28 April 2020	Test Procedure:	M10/3/3
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.		

Specimen Reference		Area mm ²	0.2% Proof Stress		Ultimate Tensile		Elongation %
Met lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MA 338-1	R2 - RC Slab. 3 rd Floor	12.63	4.94	391	5.69	451	22.5
MA 338-2	R2 - RC Slab. 3 rd Floor	12.63	4.85	384	5.73	454	N/D*
MA 339-1	R3 - RC Slab. 3 rd Floor	12.38	8.79	710	8.99	727	14.0
MA 339-2	R3 - RC Slab. 3 rd Floor	12.44	8.87	713	9.02	725	15.0
MA 339-3	R3 - RC Slab. 3 rd Floor	12.44	8.76	704	8.99	723	12.5

Comments: * Elongation not determined - final fractured occurred within the test machines grips. Results for the above samples of steel reinforcing wire strand were not assessed for strength grade. This was because no specific client specification was supplied or identified for assessment purposes.

For Sandberg LLP

Date: 4 May 2020

Neale Fetter - Assistant Manager Metallurgy Department

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.
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MATERIALS TESTING

TENSILE TEST CERTIFICATE

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London SW1W 0EBTel: 020 7565 7000
Fax: 020 7565 7100
email: ho@sandberg.co.uk
web: www.sandberg.co.uk

Certificate:	66370/M/3	Order Ref:	Email dated 26/09/2019
Samples Received:	28 October 2019	Tested By:	AT
Test Date:	01 November 2019	Test Procedure:	M10/3/3
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.		

Specimen Reference		Area mm ²	0.2% Proof		Ultimate Tensile		Elongation %
Met lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MZ 1012	Main Beam	28.56	7.20	252	13.18	462	35.0
MZ 1013	Beam 2	28.46	7.47	263	14.46	508	32.5
MZ 1014	Column	28.56	7.41	260	11.88	416	36.5
MZ 1015	Col B/P	29.22	7.61	261	13.88	475	28.5
Specification:							
BS EN 10025-2:2019							
Grade S235				235 min		360-510	26 min
Grade S275				275 min		410-560	23 min
Grade S355				355 min		470-630	22 min

Comments: The tensile properties for samples MZ 1012, MZ 1013, MZ 1014 and MZ 1015 all conformed to the structural steel grade S235.

For Sandberg LLP

Date: 5 November 2019

Neale Fetter - Assistant Manager Metallurgy Department

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



0262

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INVESTIGATION INSPECTION
MATERIALS TESTING

TENSILE TEST CERTIFICATE

BS EN ISO 6892-1:2016 B

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London SW1W 0EBTel: 020 7565 7000
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email: ho@sandberg.co.uk
web: www.sandberg.co.uk

Certificate:	66370/M/4	Order Ref:	Email dated 6/12/2019
Samples Received:	20 December 2019	Tested By:	NAF
Test Date:	02 January 2020	Test Procedure:	M10/3/3
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.		

Specimen Reference		Area mm ²	0.2% Proof		Ultimate Tensile		Elongation %
Met lab Ref	Sample Ref		Load kN	Stress N/mm ²	Load kN	Stress N/mm ²	
MZ 1251	Column Sample 7mm Dia. 75mm long	19.09	4.280	225	7.60	398	18.0
Specification:							
BS EN 10025-2:2019				185 min		290-510	18 min
Grade S185				235 min		360-510	26 min
Grade S235				275 min		410-560	23 min
Grade S275				355 min		470-630	22 min
Grade S355							

Comments: The tensile properties for samples MZ 1251 conformed to the structural steel grade S185.

For Sandberg LLP

Date: 9 January 2020

Neale Fetter - Assistant Manager - Metallurgy DepartmentMaterials, samples and test specimens are retained for a period of 2 months from the issue of the final report.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Appendix E

Chemical Composition Results





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MATERIALS TESTING

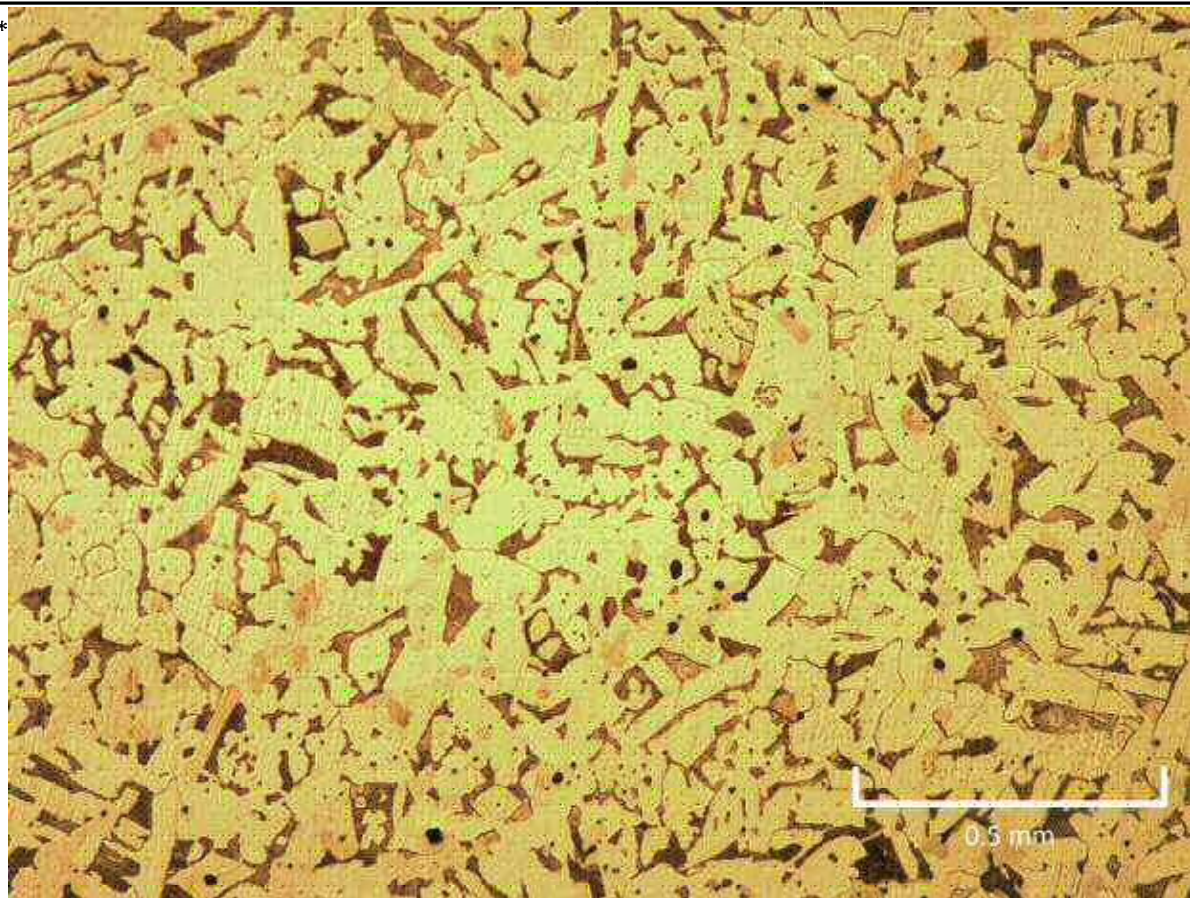
TEST CERTIFICATE

METALLOGRAPHIC EXAMINATION

TO BS EN ISO 643 : 2012

Sandberg LLP
40 Grosvenor Gardens
London SW1W 0EBTel: 020 7565 7000
Fax: 020 7565 7100
email: ho@sandberg.co.uk
web: www.sandberg.co.uk

Certificate:	66370/M/5	Order Ref:	Email dated 6/12/2019
Samples Received:	20 December 2019	Tested By:	MC
Test Date:	08 January 2020	Test Procedure:	M/5/3/2 & M13/3/0
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.		



Met Lab Ref: MZ1 251		Client Ref: Column Sample 7mm Dia. 75mm long	
Examined By: MC	Mag: X84	Etchant: 2% Nital	Grain Size Index: 5.0
Comments: Metallographic examination revealed a microstructure comprising of pearlite within a ferritic matrix, with a coarse grain structure. This would be typical of that expected of a low alloy carbon steel material.			

For Sandberg LLP

Date: 9 January 2020

Neale Fetter - Assistant Manager- Metallurgy Department

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

TEST CERTIFICATE

Certificate:	66370/M/1	Samples Received:	28 October 2019	Test Date:	31 October 2019
Reference:	Email dated 26/09/2019	Tested By:	Metaltech Services Limited	Test Procedure:	OES
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.				

CHEMICAL COMPOSITION %														
Met Lab Ref	Client Description	C	Si	Mn	S	P	Ni	Cr	Mo	Cu	V	Nb	Al	CEV
MZ 1012	Main Beam	0.10	0.02	0.48	0.022	0.011	0.10	<0.01	<0.01	0.10	<0.01	0.005	<0.01	0.199
MZ 1013	Beam 2	0.16	0.02	0.49	0.022	0.017	0.32	<0.01	<0.01	0.10	<0.01	0.005	<0.01	0.276
MZ 1014	Column	0.15	0.09	0.60	0.036	0.032	0.06	<0.01	<0.01	0.06	<0.01	0.003	<0.01	0.261
Specification:	BS EN 10025-2:2019 Grade S235 (max) Grade S275 (max) Grade S355 (max)	0.19 0.24 0.27	- - 0.6	1.5 1.6 1.7	0.045 0.045 0.045	0.045 0.045 0.045				0.60 0.60 0.60				0.35 0.40 0.45

Comments	:	Results contained in this certificate are outside the UKAS accreditation for this laboratory but have been performed on our behalf by another laboratory that is so accredited. Metaltech Services Limited Report No. MSL 4945-1. Carbon Equivalent Values (CEV) for the above samples were found to be acceptable, and as such they would be considered readily weldable using standard welding techniques and consumables as specified in BS EN 1011 : Part 2 : 2001, which supersedes withdrawn standard BS 5135 :1984.
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TEST CERTIFICATE

Certificate:	66370/M/2	Samples Received:	28 October 2019	Test Date:	31 October 2019
Reference:	Email dated 26/09/2019	Tested By:	Metaltech Services Limited	Test Procedure:	OES
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.				

CHEMICAL COMPOSITION %														
Met Lab Ref	Client Description	C	Si	Mn	S	P	Ni	Cr	Mo	Cu	V	Nb	Al	CEV
MZ 1015	Col B/P	0.23	0.01	0.54	0.024	0.052	0.02	<0.01	<0.01	0.02	<0.01	0.002	<0.01	0.329
Specification:	BS EN 10025-2:2019 Grade S235 (max) Grade S275 (max) Grade S355 (max)	0.19 0.24 0.27	- - 0.6	1.5 1.6 1.7	0.045 0.045 0.045	0.045 0.045 0.045				0.60 0.60 0.60				0.35 0.40 0.45

Comments	Results contained in this certificate are outside the UKAS accreditation for this laboratory but have been performed on our behalf by another laboratory that is so accredited. Metaltech Services Limited Report No. MSL 4945-1. The above sample MZ 1015 gave high phosphorus content, exceeding the maximum allowable limit for modern structural steels. The CEV value for this sample is within the maximum allowable limits, therefore material of this quality would be considered weldable using standard welding techniques and consumables as specified in BS EN 1011 : Part 2 : 2001, which supersedes withdrawn standard BS 5135 : 1984, however consideration for the high phosphorus content should be made.
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For Sandberg LLP

Neale Fetter - Assistant Manager Metallurgy Department

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Date: 5 November 2019

TEST CERTIFICATE

Certificate:	66370/M/12	Samples Received:	13 March 2020	Test Date:	07 May 2020
Reference:	Proforma No. 2	Tested By:	RoTech Laboratories	Test Procedure:	ICP
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.				

CHEMICAL COMPOSITION %														
Met Lab Ref	Client Description	C	Si	Mn	S	P	Ni	Cr	Mo	Cu	V	Nb	Al	CEV
MA 328	SFS1 - First Floor RC Slab (Strand)	0.039	<0.01	0.39	0.071	0.053	0.04	0.01	<0.01	0.04	<0.01	<0.01	<0.003	0.115
MA 330	SFS2 - Second Floor RC Slab (Strand)	0.041	<0.01	0.51	0.052	0.045	0.04	0.01	<0.01	0.04	<0.01	<0.01	<0.003	0.137
MA 337	R1 - Third Floor RC Slab (Twisted Strand)	0.088	<0.01	0.45	0.034	0.069	0.10	0.04	0.02	0.06	<0.01	<0.01	0.003	0.188
Specification:														

Comments	Results contained in this certificate are outside the UKAS accreditation for this laboratory but have been performed on our behalf by another laboratory that is so accredited. RoTech Laboratories Report No. 20-05033. Materials are a Carbon-Manganese steel with no intentional alloying, the Sulphur and Phosphorous levels are high for steel. If the materials are to be welded consideration on the low CEV, High Sulphur and Phosphorus levels must be taken. The material is not considered readily weldable according to BS EN 1011, thus it would be prudent to seek advice of a welding engineer prior to welding the material.
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For Sandberg LLP



Date: 11 May 2020

Neale Fetter - Assistant Manager Metallurgy Department

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

TEST CERTIFICATE

Certificate:	66370/M/11	Samples Received:	13 March 2020	Test Date:	14 April 2020
Reference:	Proforma No. 2	Tested By:	Metaltech Services Limited	Test Procedure:	OES
Client Details:	Load Test Solutions Ltd, Unit 2 Zone 5, Clonminam Business Park, Portlaoise, R32 W2RW, Co Laois, Ireland.				

CHEMICAL COMPOSITION %														
Met Lab Ref	Client Description	C	Si	Mn	S	P	Ni	Cr	Mo	Cu	V	Nb	Al	CEV
MA 332	SFSB1 - Beam Web, 2 nd Floor	0.19	<0.01	0.66	0.038	0.039	0.04	<0.01	<0.01	0.02	<0.01	<0.01	0.001	0.310
Specification:	BS EN 10025-2:2019 Grade S235 (max) Grade S275 (max) Grade S355 (max)	0.19 0.24 0.27	- - 0.6	1.5 1.6 1.7	0.045 0.045 0.045	0.045 0.045 0.045				0.60 0.60 0.60				0.35 0.40 0.45

Comments	Results contained in this certificate are outside the UKAS accreditation for this laboratory but have been performed on our behalf by another laboratory that is so accredited. Metaltech Services Limited Report No. MSL 5402 Carbon Equivalent Value (CEV) for the above sample was found to be acceptable, and as the material would be considered readily weldable using standard welding techniques and consumables as specified in BS EN 1011 : Part 2 : 2001, which supersedes withdrawn standard BS 5135 :1984.
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N. Fetter