BARRETT **MAHONY**
CIVIL & STRUCTURAL
CONSULTING ENGINEERS

Basement Impact Assessment Report

Project:

Development at
Gowan House,
Carriglea Business Park,
Naas Road, Dublin 12

Document No:	22.219-BIA-01
Project:	Development at Gowan House
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Document Title:	Basement Impact Assessment Report
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DOCUMENT STATUS

Issue	Date	Description	Orig.	PE	Issue Check
PL2	11/10/23	Planning Issue	JCu	JCu	

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1 INTRODUCTION

1.1 PROJECT DESCRIPTION

Malclose Limited intend to apply to Dublin City Council for a 7-year permission for a large-scale residential development principally comprising student accommodation at this 0.962 Ha site at Gowan House, Carriglea Business Park, Naas Road, Dublin 12, D12 RCC4.

Works to upgrade of the access road to the west of the site on an area measuring c. 0.081 Ha are also proposed comprising new surfacing to the carriageway, the provision of inbound and outbound bicycle lanes from the development entrance to the Naas Road, the provision of a controlled pedestrian crossing on the access road at the Naas Road junction, and the provision of a further uncontrolled pedestrian and bicycle crossing linking the subject site with the approved Concorde SHD development (ABP Ref: TA29S.312218) to the west.

On the Naas Road, works are proposed on an area measuring c. 0.086 Ha comprising the realignment and widening of the existing pedestrian footpath along the westbound carriageway of the Naas Road and the provision of linkages from the realigned footpath to the development site, and the provision of new controlled pedestrian crossings across the eastbound and westbound carriages of the Naas Road and the provision of a new uncontrolled crossing of the Luas tracks.

The development site area and roadworks areas will provide a total application site area of c. 1.13 Ha.

The proposed development will principally consist of: the demolition of the existing two-storey office/warehouse building and outbuilding (5,172 sq m); and the construction of a development in two blocks (Block 1 (eastern block) is part 2 No. storeys to part 15 No. storeys over lower ground floor and basement levels with roof plant over and Block 2 (western block) is part 9 No. storeys to part 11 No. storeys over basement with roof plant over) principally comprising 941 No. Student Accommodation bedspaces (871 No. standards rooms, 47 No. accessible studio rooms and 23 No. studios) with associated facilities, which will be utilised for short-term lets during student holiday periods. The 871 No. standard rooms are provided in 123 No. clusters ranging in size from 3 No. bedspaces to 8 No. bedspaces, and all clusters are served by a communal living/kitchen/dining room.

The development also provides: ancillary internal and external communal student amenity spaces and support facilities; cultural and community floor space (1,422 sq m internal and 131 sq m external) principally comprising a digital hub and co-working space with ancillary cafe; a retail unit (250 sq m); public open space; the daylighting of the culverted River Camac through the site; an elevated walkway above the River Camac at ground floor level; a pedestrian bridge link at first floor level between Blocks 1 and 2; vehicular access at the south-western corner; the provision of 7 No. car-parking spaces, 2 No. motorcycle parking spaces and 2 No. set down areas; bicycle stores at ground and lower ground floor levels; visitor cycle parking spaces; bin stores; substations; hard and soft landscaping; green and blue roofs; new telecommunications infrastructure at roof level of Block 1 including antennas and microwave link dishes, 18 No. antennas and 6 No. transmission dishes, together with all associated equipment; boundary treatments; plant; lift overruns; and all associated works above and below ground.

The gross floor area of the development is c. 33,140 sq m comprising c. 30,386 sq m above lower ground and basement level.

Figure 1-1: Site Location Map

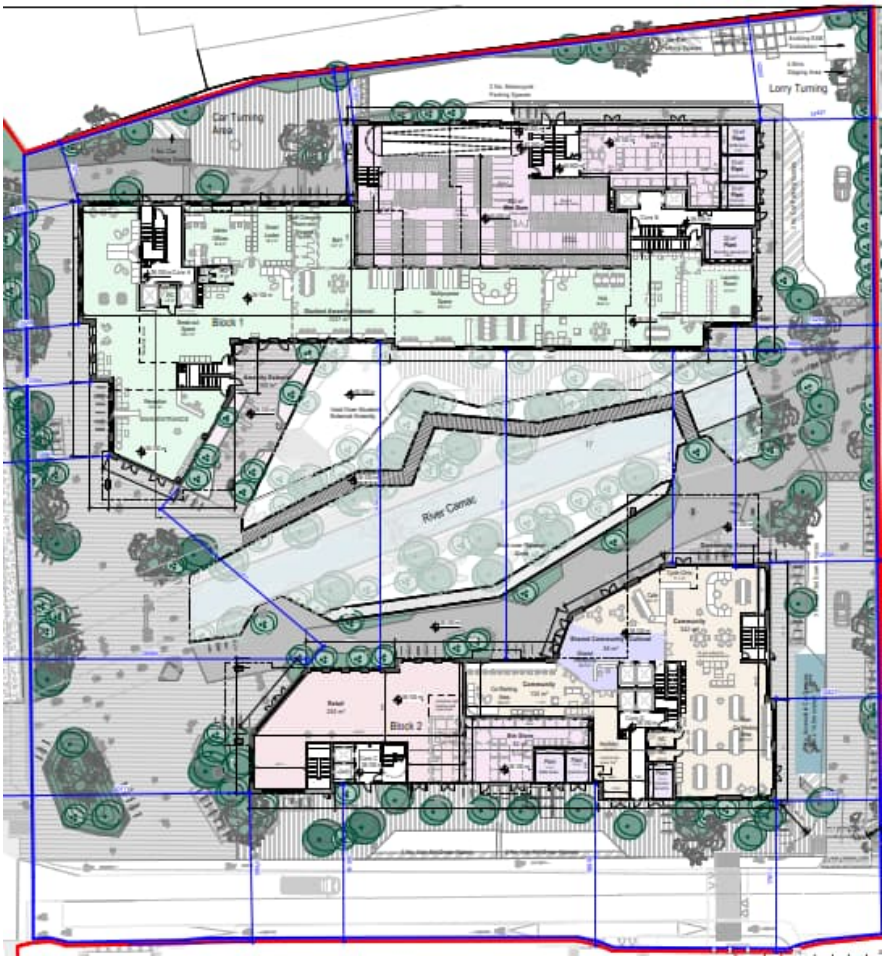


Figure 1-2: Site Layout Plan

1.2 PURPOSE OF THIS REPORT

The purpose of this report is to identify potential impacts, short and long term of the proposed basement construction, to demonstrate that the proposed basement is acceptable; and to identify if and how appropriate mitigating measures should be incorporated if required. The planning authority is Dublin City Council (DCC). This BIA has been undertaken in accordance with the DCC Development Plan 2022-2028 ('the DP'), Appendix 9 "Basement Development Guidance" and DCC "Basement Development Guidance Document" which provides a comprehensive guidance on assessing basement impact. The format of the report is primarily based on recommendations in these documents.

A Basement Impact Assessment describes the impacts, short and long-term, of the proposed basement on the environment by comparing the present situation (baseline) with the situation as it would be with the basement in place. This risk-based impact assessment is to be undertaken with regard to, amongst other potential impacts, geological, hydrology, hydrogeology and land stability and the consequence of changes in these areas.

The report contains a commentary on desk study information for the site and the site Investigation works that have been carried out. It gives an outline of the proposed works and goes on to assess the impact of the works on the surrounding properties, groundwater conditions and geological, hydrogeology, hydrology, services, drainage and any other existing infrastructure which is likely to be affected by the proposed basement.

The BIA process involves carrying out a desk study of local and site-specific information and existing ground conditions. A Ground Movement and Damage Category Assessment is carried out that identifies potential impact to neighbouring properties along with a Hydrogeological Assessment for the groundwater movements regarding to the excavation. This will identify potential impacts on the current site and will propose mitigation measures in order to guarantee appropriate excavation for the proposed development.

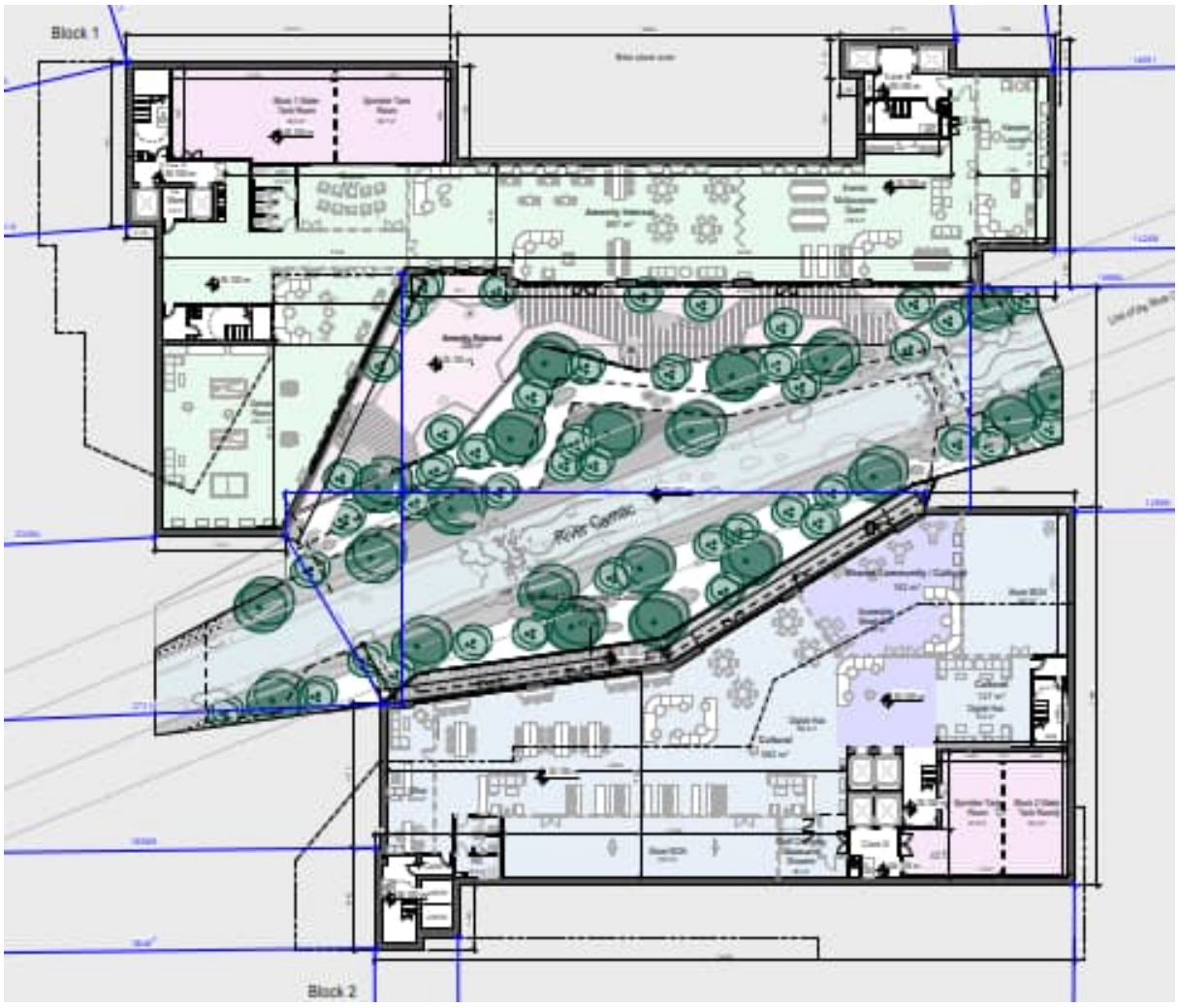


Figure 1-3: Basement Layout

1.3 INFORMATION USED

The following documents have been used by Barrett Mahony Consulting Engineers to inform this BIA:

- BMCE Civil Engineering Drawings accompanying this report as part of the planning application.
- BMCE Civil Engineering Infrastructure Report, Surface Water Management Report.
- Site Specific Flood Risk Assessment Report.
- AWN Consulting Construction & Environnemental Management Plan.
- Murphy Survey Ltd Topographical & Utility Surveys contained in Appendix 1 of this report.
- Geotechnical Investigation Report on the site prepared by GII Ltd (report number 12689-03-23 dated 07.07.2023). Refer to Appendix 1 for complete report.
- Waste Classification Report prepared by GII Ltd January (report no.12689-03-22 dated 13.07.23). Refer to Appendix 1 for complete report.
- Review of Geological Survey Ireland (GSI) geological maps.
- Environmental Protection Agency (EPA) maps.
- Ordnance Survey Ireland maps.
- Water Framework Directive (2000/60/EC).
- Review of underground asset maps.
- DCC Development Plan 2022-2028, Appendix 9 “Basement Development Guidance”.
- DCC “Basement Development Guidance Document” (September 2019).
- The Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C502) (1999).
- CIRIA Control of Water Pollution from Construction Sites (C532) (2001).
- Met Eireann data.

2 BASELINE CHARACTERISTICS OF THE PROJECT

This section is intended to describe the existing site and record the baseline condition as set out in DCC’s “Basement Development Guidance” document.

2.1 EXISTING SITE

The subject site is surrounded by the following buildings:

- From the South: Carriglea Residential Development.
- From the East: Two storey commercial/industrial building at Muirfield Drive, Naas Rd.
- From the west: Concorde Industrial Estate.

Figure 2-1: Front View of The Site From Naas Road

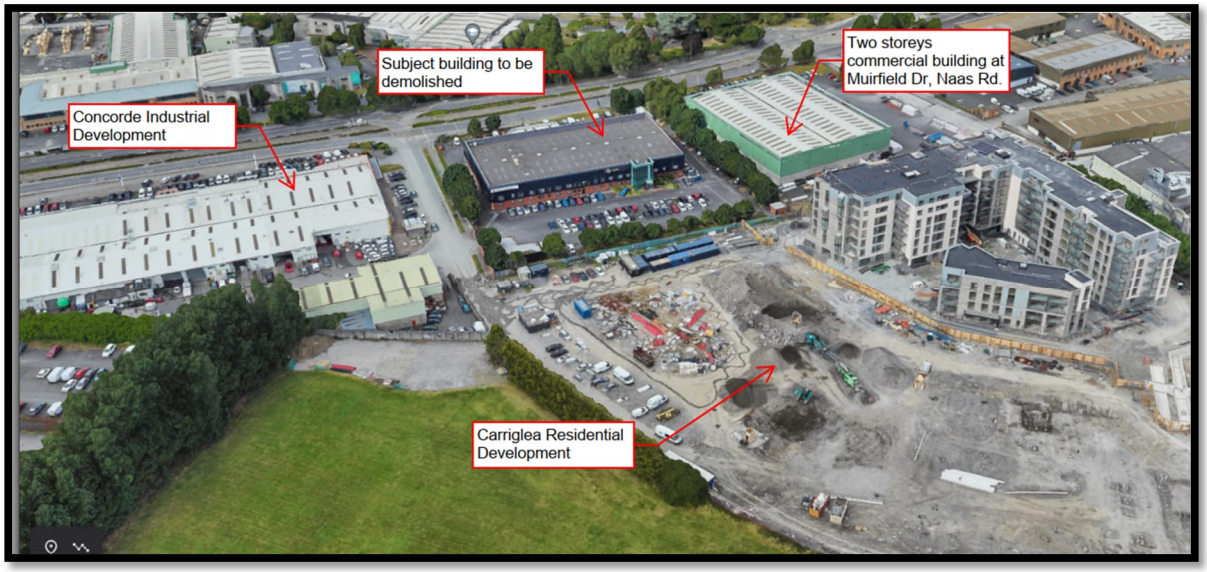


Figure 2-2: Aerial view of the site

Figure 2-3: Internal View of Site

2.2 PROPOSED WORK

It is proposed to demolish the existing two-storey office/warehouse building and to construct a development in two blocks, Block 1 will have up to 15 storeys over lower ground floor and basement levels and Block 2 will have up to 11 storeys over basement. Refer to section 1.1 of this report for the full project description.

2.3 CONSERVATION, CULTURE AND HERITAGE

According to the Archaeological, Architectural and Cultural Heritage Impact Assessment report prepared by Rubicon Heritage Services Ltd, there are seven Protected Structures in the study area, two of which are Recorded archaeological monuments and four are also listed on the NIAH. The protected structures are located between 70 – 525 m from the development site and will not be directly impacted by the proposed works. They consist of a Church, a graveyard, a second Church 'Our Lady of the Wayside', Hollybrook House, Drimnagh Castle, the former Mercedes Benz garage and Naistera House.

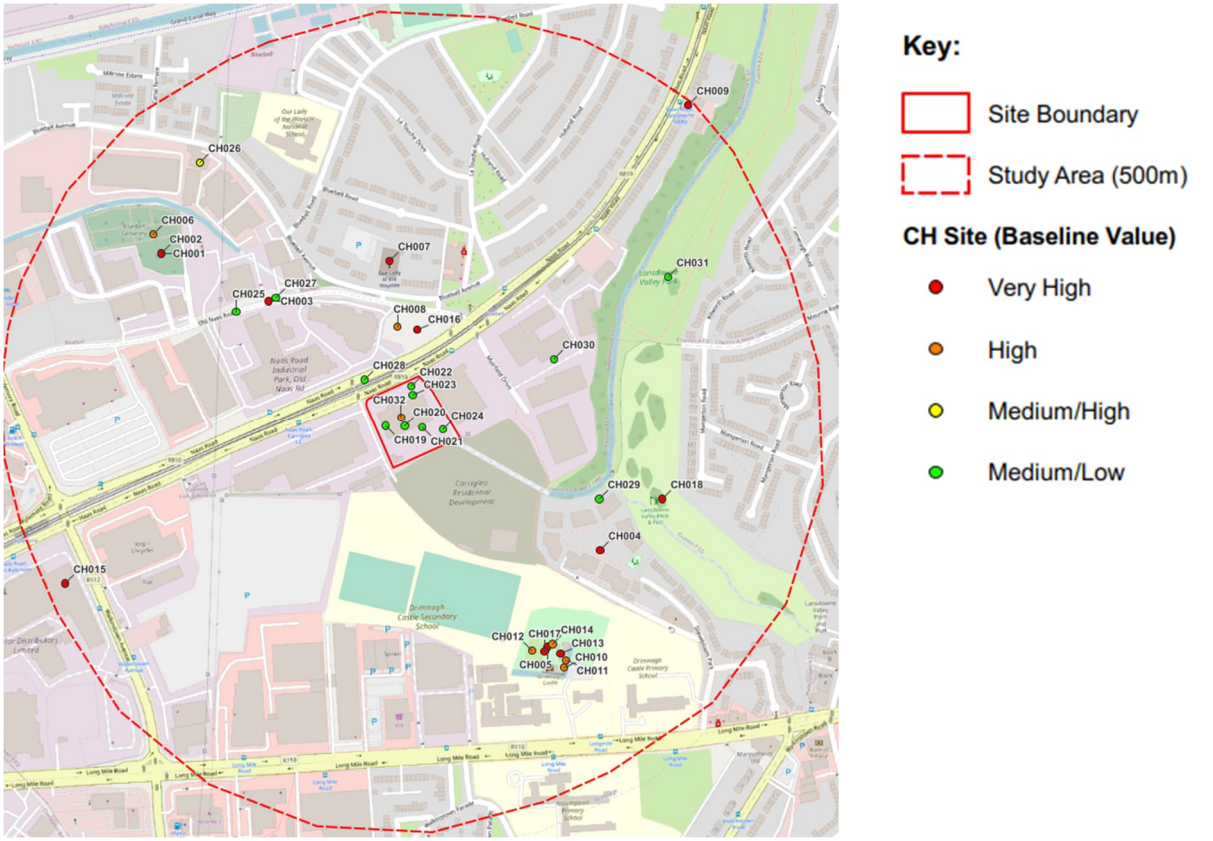


Figure 2-4: Study Area and Baseline Value of Cultural Heritage sites

2.4 SITE TOPOGRAPHY

A detailed topographical survey of the existing site has been prepared by Murphy Geospatial and is included on drawing GWH-BMD-ZZ-XX-DR-C-1006. The site is mostly flat with very slight differences between the measured points as shown in Figure 2-5.

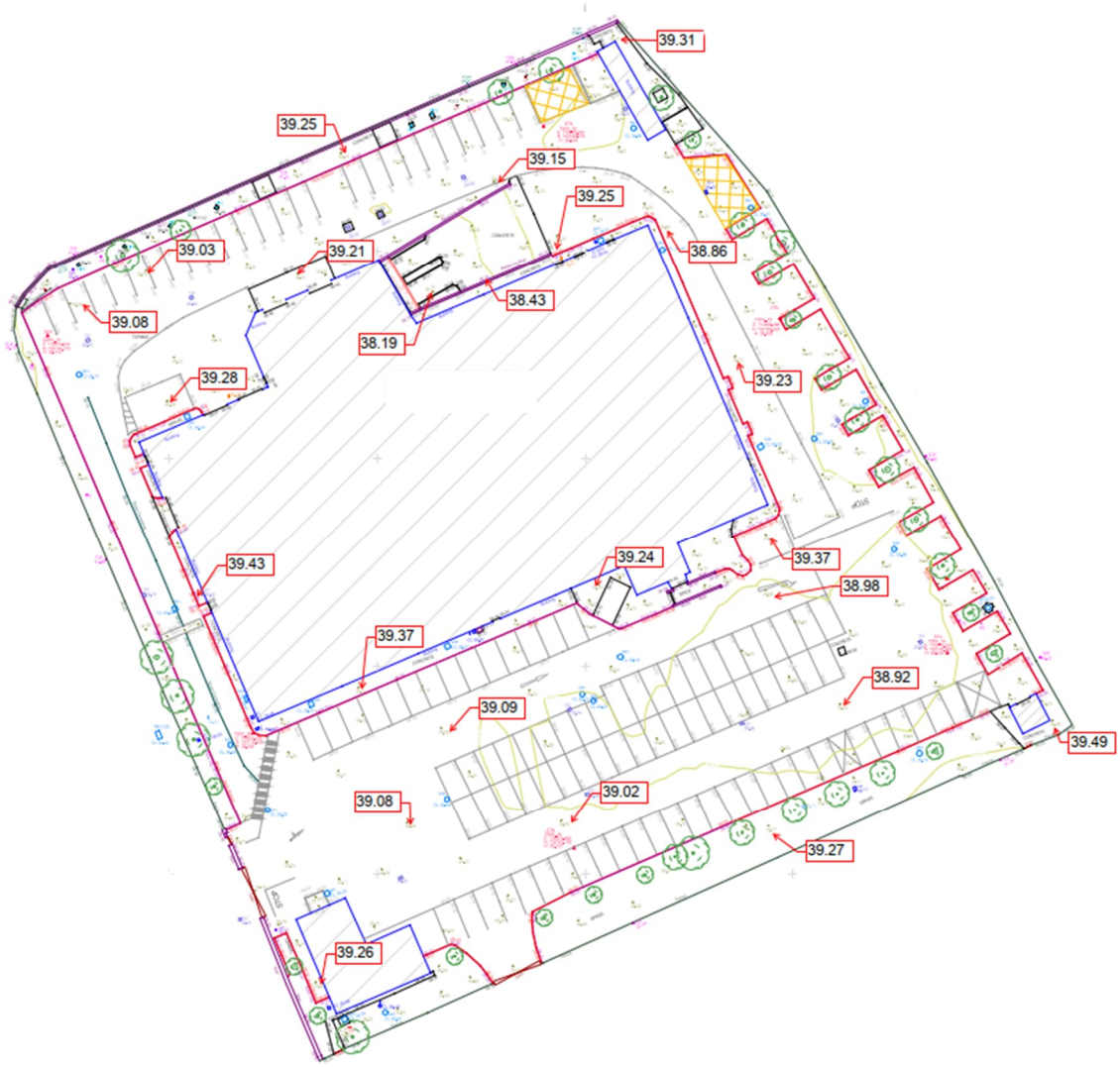


Figure 2-5: Summery of Site Topography with Ordnance Datum Levels

2.5 UNDERGROUND SERVICES

A Ground Penetrating Radar (GPR) survey has been carried out by Murphy Geospatial to determine the extent of existing services on site. The findings of the survey are as follows:

2.5.1 DRAINAGE

Stormwater is identified within manholes 25, 16, 10, 9, 6, and 21, gathering runoff from manholes 1, 2, 15, 17, the building, and gullies before converging into combined sewer manhole 22. Foul sewer is detected in manholes 18, 20, 13, 14, 11, 8, 7, and an adjacent inspection cover, flowing towards manhole 23, where it is discharged offsite. Combined sewer is present in manholes 24, 22, and 3, leading to possible septic tank manholes 4 and 5 with restricted access. Service records display a disused stormwater channel/culvert crossing the surveyed area, which lacks on-site verification and is marked on the drawing for reference only.

2.5.2 WATER MAINS / FIRE MAINS

Water main pipe has been traced from the hydrant/sluice valve located on site nearby manhole 7 to offsite and until signal was lost of this pipe. Due to non-metallic nature of pipes no signal was detected from other sluice valve and hydrant located on site.

Location of the water main pipe was also shown on the drawing based on the GPR results, however due to the signal being absorbed by the pipe material rather than reflected back to the radar antenna, GPR results were not fully conclusive for entire water main network and only some sections of this network were identified.

2.5.3 ELECTRICITY & STREET LIGHTING

Electrical cables/ducts were detected within survey area running from substation and connecting to building and electrical boxes (charging points).

Sections of the ESB network which were shown on service records drawing but which couldn't be located and verified on site were marked with 'records' note and it is recommended to treat their location as indicative only.

Public lighting cables have been identified on site connecting lamp posts, substation and building. No signal was detected of some lamps and ground light found on site.

2.5.4 EIR, ENET, UPC (Virgin), BT AND ANOTHER COMMS

Eir cables were found in manholes 19 running to offsite and connecting the building.

No evidence of Enet, Vir or BT was found within survey area. There is no Vir, BT cables in this area according to service provider's records data.

2.5.5 GAS, OIL & FUEL MAINS

Due to the non-metallic nature of the pipes, no signal was detected from the gas valves, gas box located nearby manhole 16 and from exposed 50mm pipe located nearby the building.

GPR results were not conclusive for gas main pipes due to the signal being absorbed by the pipe material rather than reflected back to the radar antenna.

Gas pipes, which were shown on records drawings, but which couldn't be located and verified on site were marked with 'records' note and it is recommended to treat their location as indicative only. Also, assumed connections shown on the drawing should be treated as indicative only.

2.5.6 UNKNOWN CABLES/EMPTY DUCTS AND SERVICES

Unknown cables have been identified on site inside manhole 12 connecting the building and running to offsite and also nearby manhole 22 connecting the building and gate box.

Empty duct was identified inside inspection cover located nearby manhole 20 but due to duct being blocked it was not possible to be trace it.

Unidentified closed pipe/duct was found in manhole 19. No signal was detected of this service and it was not possible to trace it.

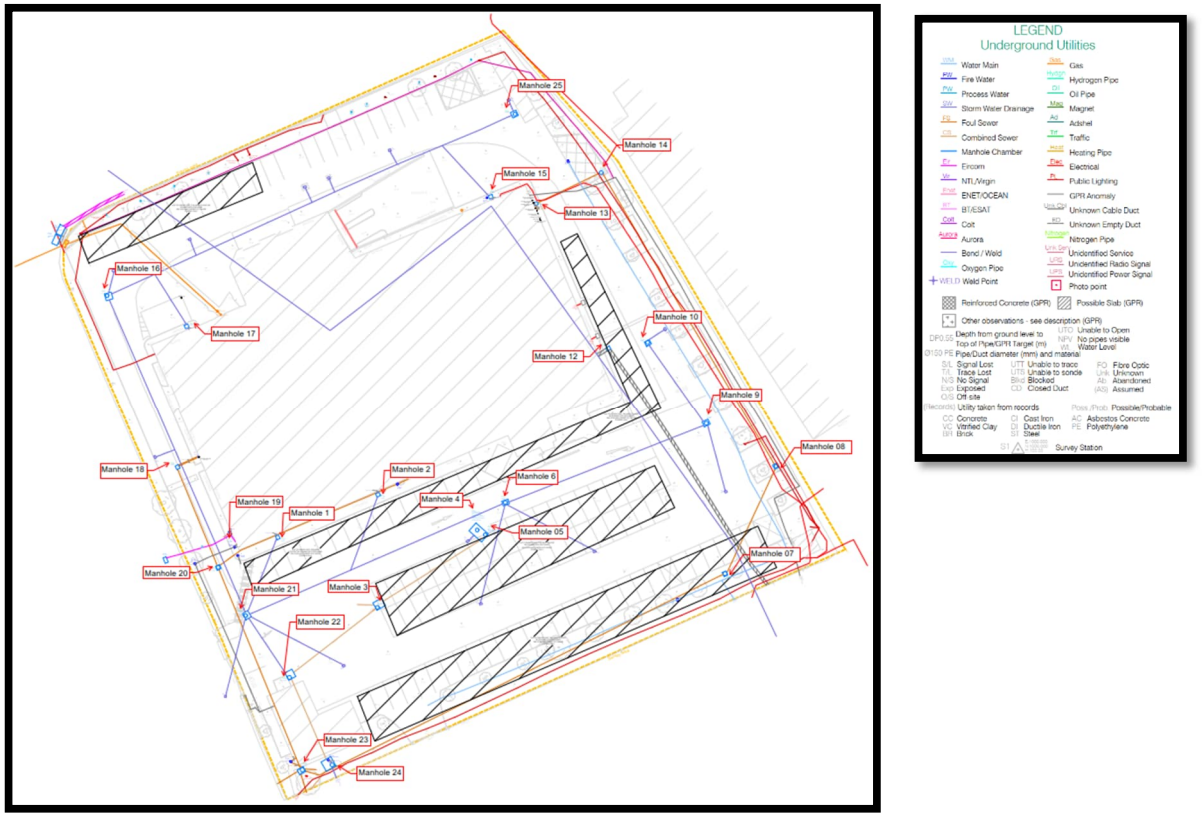


Figure 2-6: Utility services

We note that the services that were found on site will be made redundant by either removing them, or to be kept in the ground where there is no clash with the proposed construction works is occurred. New service lines will be designed and installed to suit the layout of the new development.

2.6 HISTORCIAL REVIEW

Historical maps of the area dating back to 1760 have been obtained as part of the desk study from Ordnance Survey Mapping Service GeoHive and from the Architectural Heritage Impact Report carried out by Rubicon Heritage Services Ltd confidential.

The River Camac was culverted beneath the proposed development in in the twentieth century and currently lies approximately 4.5m – 9m below the currently ground level. The site was then infilled and developed and currently contains Gowan House, the former headquarters of Gowan Group motor importers. It is likely that the culverting of the Camac, the infilling and the construction of the extant property impacted some of the cultural heritage receptors.

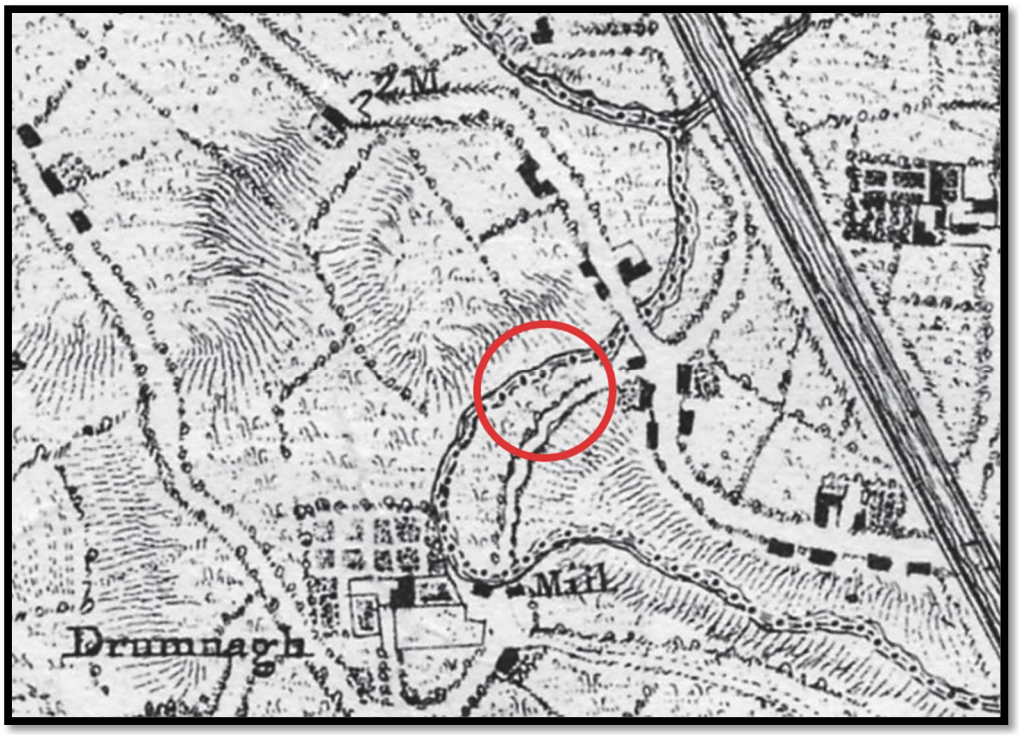


Figure 2-7: Extract from Rocque's Map of County Dublin of 1760

Figure 2-8: First edition 6-inch Ordnance Survey map showing proposed development site

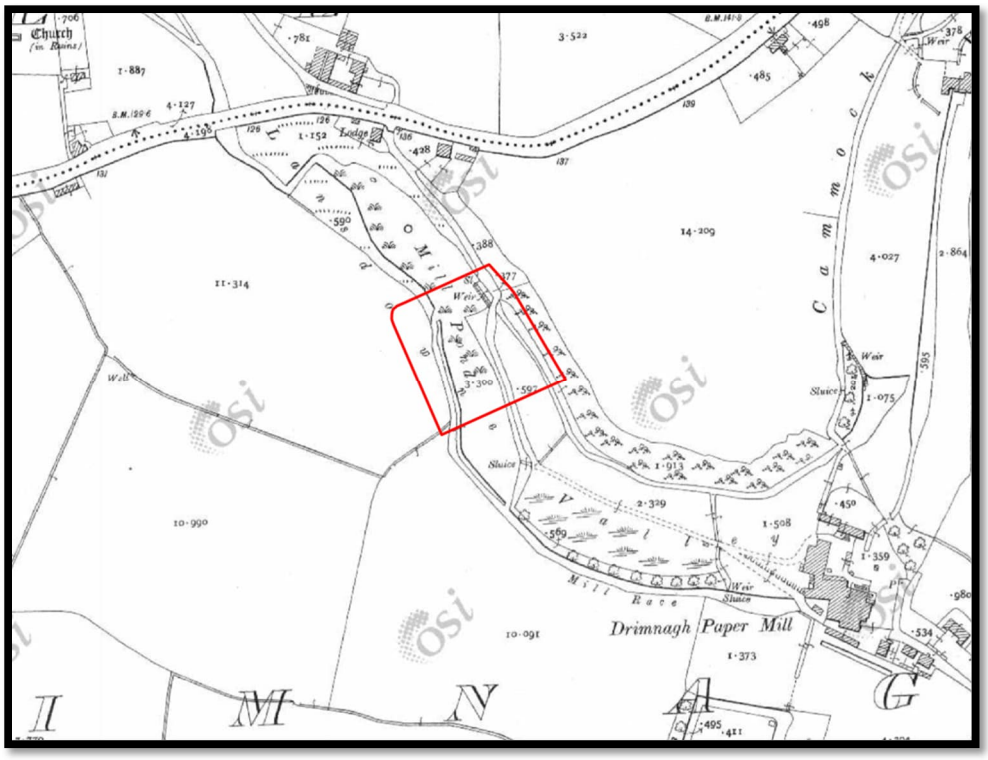


Figure 2-9: Second edition 25-inch Ordnance Survey map showing proposed development site

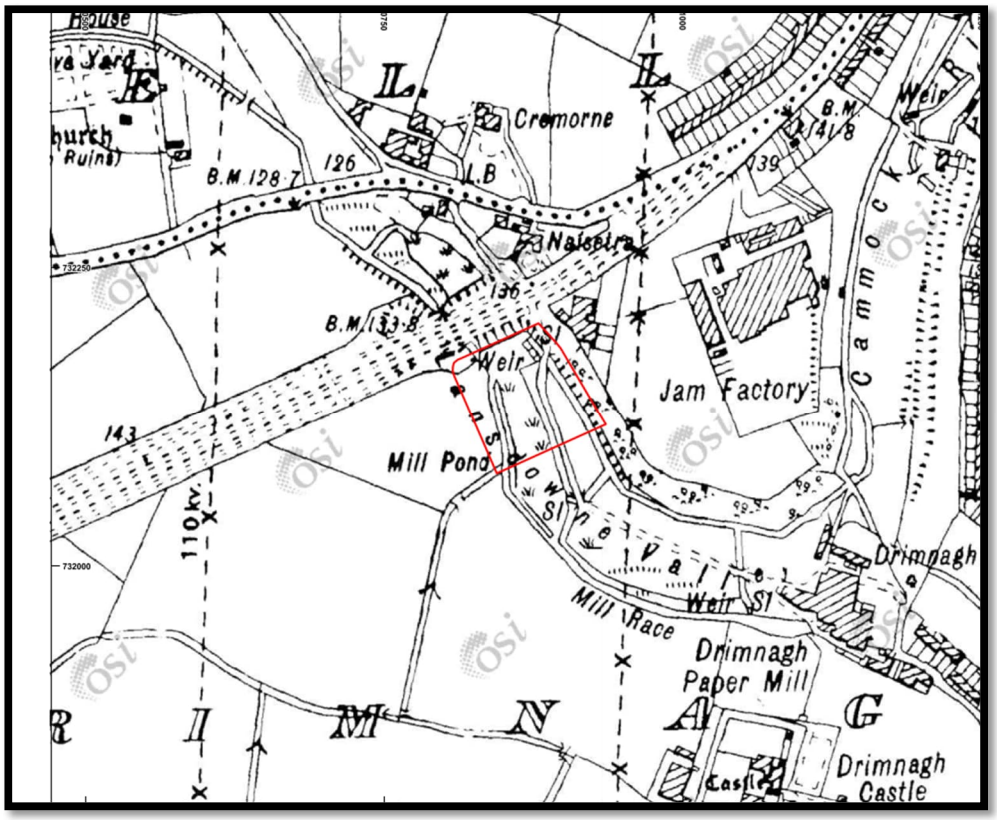


Figure 2-10: Cassini map showing proposed development site

2.7 GROUND CONDITIONS

A site investigation (S.I.) for the site was commissioned by Barrett Mahony Consulting Engineers and carried out by Ground Investigations Ireland Ltd. (report number 12689-03-23 dated 07.07.2023). Refer to Appendix 1 for the report.

Stratigraphy:

The ground conditions encountered during the investigation are summarised below with reference to in-situ and laboratory test results. The sequence of strata encountered were variable across the site and generally comprised;

- Surfacing
- Made Ground
- Possible Made Ground
- Granular Deposits
- Cohesive Deposits
- Weathered Bedrock
- Bedrock

SURFACING: Tarmac surfacing was present in all the exploratory holes typically to a depth of 0.20m BGL. MADE GROUND: Made Ground deposits were encountered beneath the Surfacing and were present to a maximum depth of 8.20m BGL. These deposits were described generally as brown sandy slightly gravelly CLAY with frequent cobbles and boulders and contained low fragments of concrete, red brick, glass and plastic.

POSSIBLE MADE GROUND: Possible Made Ground deposits were encountered beneath the Made Ground and were present to a maximum depth of 6.40m BGL. These deposits were described generally as brown sandy slightly gravelly CLAY with low amount of cobbles.

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Made Ground to a maximum depth of 8.0m BGL and were described typically as brown sandy gravelly CLAY with occasional cobbles and boulder overlying a stiff to very stiff dark grey/black sandy gravelly CLAY. The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the glacial till matrix. The strength of the cohesive deposits were typically firm where encountered. These deposits had low cobble and boulder content, where noted on the exploratory hole logs.

GRANULAR DEPOSITS: Granular deposits were encountered within the cohesive deposits at the location of BH03 and were typically described as grey/ brown clayey sandy sub rounded to sub angular fine to coarse GRAVEL with occasional cobbles and rare boulders. The secondary sand/gravel and silt/clay constituents varied across the site and with depth while occasional or frequent cobble and boulder content also present where noted on the exploratory hole logs.

BEDROCK: The rotary core boreholes recovered weak to strong grey/dark grey fine to medium grained laminated LIMESTONE interbedded with weak black fine grained laminated Mudstone. The depth to rock varies from 8.13m BGL in BH01 to a maximum of 13.54m BGL in BH03. The total core recovery is good, typically 100% with some of the uppermost runs dropping to 80 or 90%. The SCR and RQD both are relatively poor in the upper weathered zone, often recovered as non-intact, however both indices show an increase with depth in each of the boreholes.

Groundwater:

Groundwater monitoring was carried out as part of the S.I. Standpipes in Boreholes 01 & 02 indicated groundwater at 4.91 BGL in BH01 in the Made Ground and at 4.29 BGL in BH02 in the Made Ground as well.

Contamination:

A Waste Classification Report was prepared by GII Ltd as noted in Section 1.3. 10no. samples were taken from trial pits and tested using the Rilta Suite of tests. The maximum depth of the samples was 3.3m BGL. The waste classification definitions are shown in Figure 2-11: Waste Categorisation and a summary of the results is given below in Figure 2-12: Individual Sample Waste Category. 12 of the tested samples indicated 'Inert' material (Categories A, B1 & B2). 5 of the samples indicate 'Non-Hazardous' material Class C & Class C2. 2 of the samples tested (at TP01) were Class D Hazardous. All materials will be monitored closely on site and disposed to an appropriate facility where necessary.

Waste Category	Classification Criteria
Category A Unlined Facilities	Soil and Stone only which are free from[10] anthropogenic materials such as concrete, brick, timber. Soil must be free from "contamination" e.g. PAHs, Hydrocarbons[11].
Category B1 Inert Landfill	Reported concentrations within inert waste limits, which are set out by the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002). Results also found to be non-hazardous using the HWOL[12] application.
Category B2 Inert Landfill	Reported concentrations greater than Category B1 criteria but less than IMS Hollywood Landfill acceptance criteria, as set out in their Waste Licence W0129-02. Results also found to be non-hazardous using the HWOL application.
Category C Non-Haz Landfill	Reported concentrations greater than Category B2 criteria but within non-haz landfill waste acceptance limits set out by the adopted EU

Waste Category	Classification Criteria
	Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002). Results also found to be non-hazardous using the HWOL application.
Category C 1 Non-Haz Landfill	As Category C but containing < 0.001% w/w asbestos fibres.
Category C 2 Non-Haz Landfill	As Category C but containing >0.001% and <0.01% w/w asbestos fibres
Category C 3 Non-Haz Landfill	As Category C but containing >0.01% and <0.1% w/w asbestos fibres.
Category D Hazardous Treatment	Results found to be hazardous using HWOL Application.
Category D 1 Hazardous Disposal	Results found to be hazardous due to the presence of asbestos (>0.1%).

Figure 2-11: Waste Categorisation

Sample ID	Sample Depth (m)	Material Type	Sample Date	LoW Code	Waste Category
TP01	0.60-1.20	Made Ground	24/04/2023	17 05 03	Category D
TP01	2.50	Made Ground	24/04/2023	17 05 03	Category D
TP02	0.70-1.60	Made Ground	24/04/2023	17 05 04	Category C
TP02	3.20	Made Ground	24/04/2023	17 05 04	Category C
TP03	0.80-1.20	Made Ground	24/04/2023	17 05 04	Category B1
TP03	2.70	Made Ground	24/04/2023	17 05 04	Category B1
TP04	1.10-1.50	Made Ground	24/04/2023	17 05 04	Category B1
TP04	3.20	Made Ground	24/04/2023	17 05 04	Category B1
TP05	0.50-1.00	Made Ground	24/04/2023	17 05 04	Category B1
TP05	2.00	Clay	24/04/2023	17 05 04	Category A
TP06	0.50	Made Ground	24/04/2023	17 05 04	Category C
TP07	0.50	Made Ground	24/04/2023	17 05 04	Category B1
TP07	1.00	Clay	24/04/2023	17 05 04	Category B1
TP08	0.50-1.00	Made Ground	24/04/2023	17 05 04	Category B1
TP08	2.00	Made Ground	24/04/2023	17 05 04	Category C
TP09	0.60-1.50	Made Ground	24/04/2023	17 05 04	Category C2
TP09	1.90	Clay	24/04/2023	17 05 04	Category B1
TP10	0.50	Made Ground	24/04/2023	17 05 04	Category B1
TP10	1.00	Made Ground	24/04/2023	17 05 04	Category B1

Figure 2-12: Individual Sample Waste Category

2.8 PROPOSED BASEMENT DESIGN

2.8.1 CAMAC RIVER

After the initial demolition phase involving the removal of the existing buildings on site, an enabling works phase involving daylighting the Camac River will be carried out, as shown in Figure 2-13: Camac River and depicted in the cross-sections below. To ensure the stability of the surrounding ground, a sloping gradient with a ratio of 1:2 will be implemented, commencing from a point 5 meters away from the culvert's side face. Subsequently, retaining walls will be constructed on both sides of the culvert. Finally, the culvert's lid will be demolished from both sides.

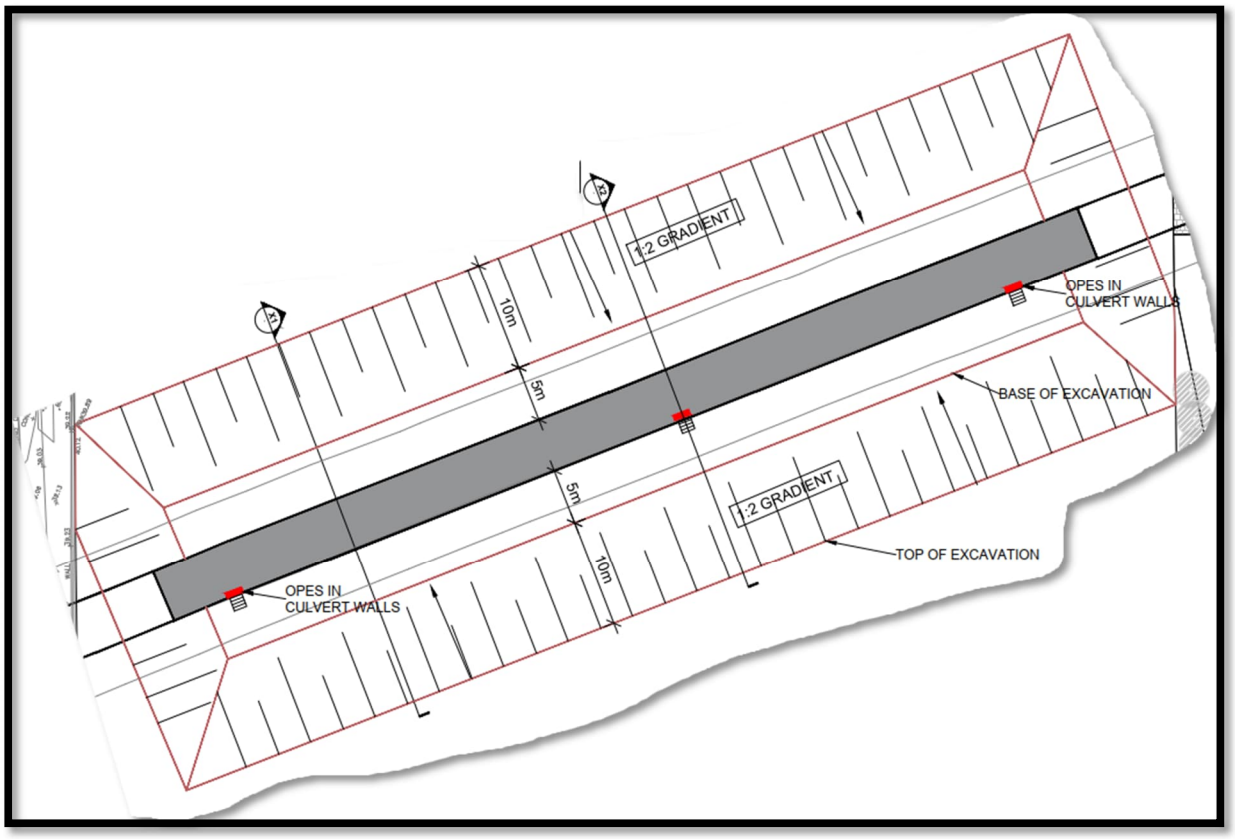
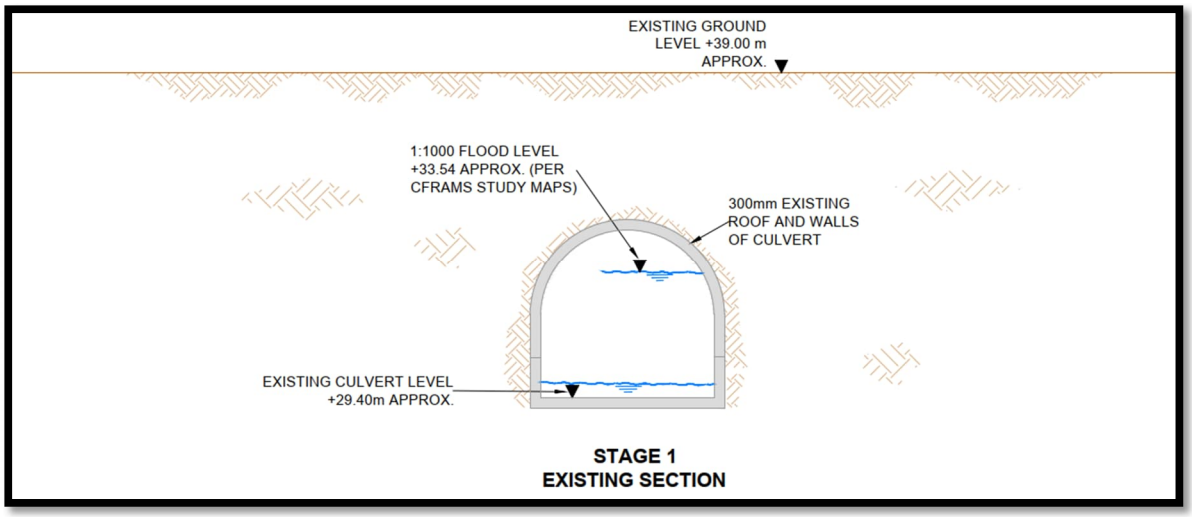
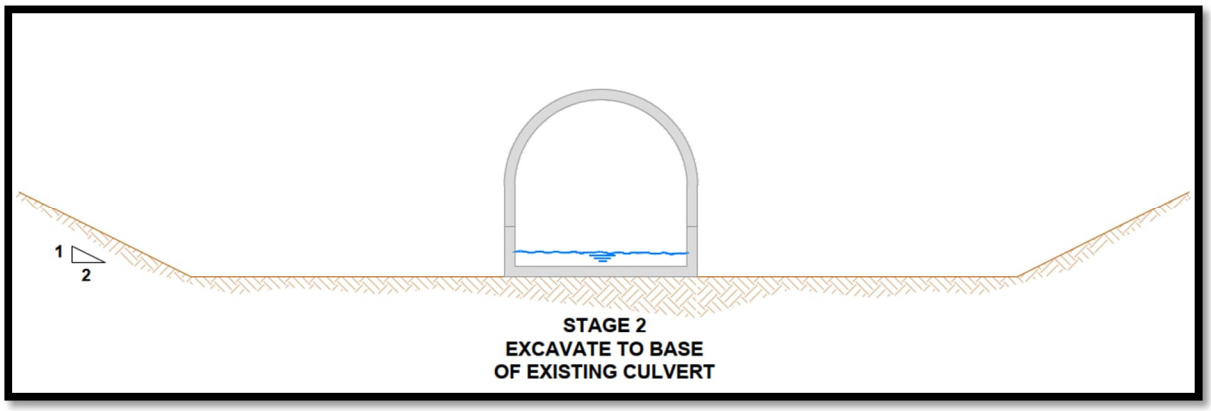


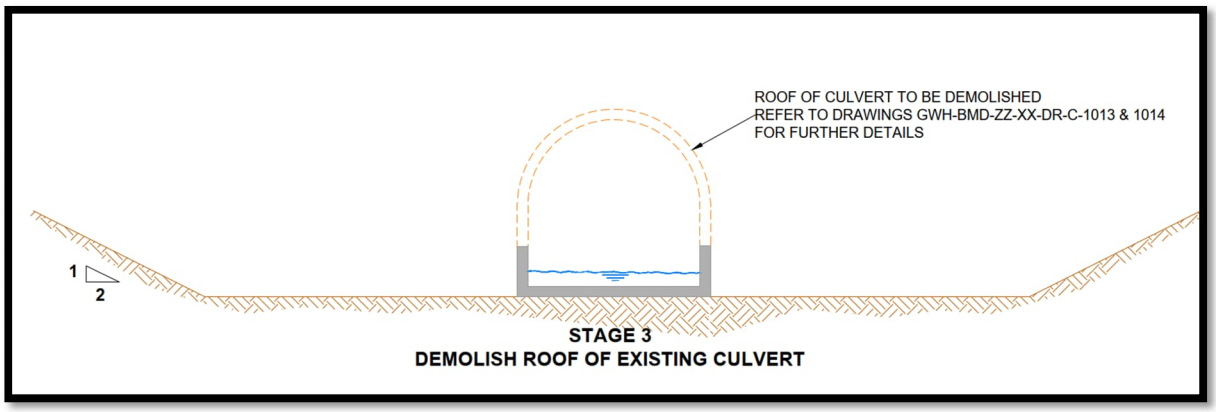
Figure 2-13: Camac River construction work (from BMCE drawing GWH-BMD-ZZ-XX-DR-C-1013)



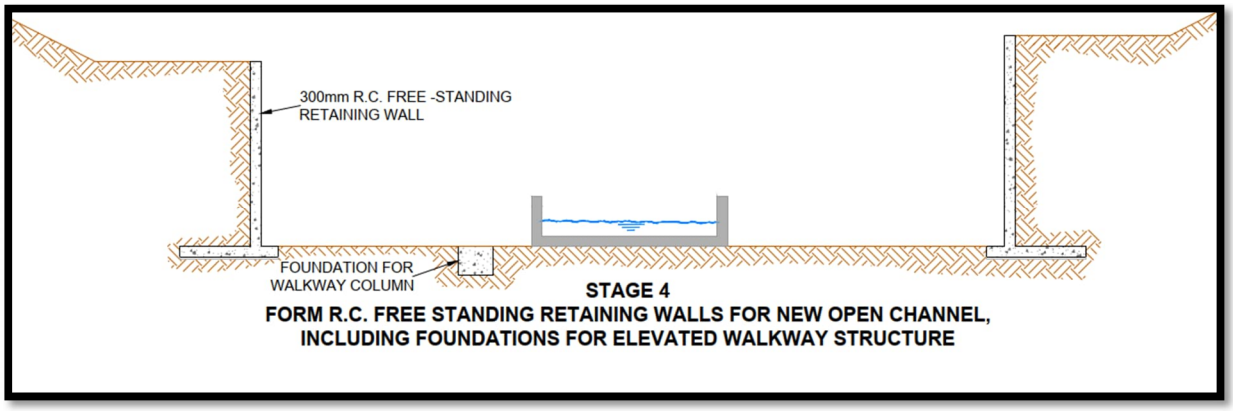
STAGE 1
EXISTING SECTION



STAGE 2
EXCAVATE TO BASE
OF EXISTING CULVERT



STAGE 3
DEMOLISH ROOF OF EXISTING CULVERT



STAGE 4
FORM R.C. FREE STANDING RETAINING WALLS FOR NEW OPEN CHANNEL,
INCLUDING FOUNDATIONS FOR ELEVATED WALKWAY STRUCTURE

2.8.2 BASEMENT WORK

The main basement floor level is at +35.100 meters, and the formation level (FL) for excavation is at +33.500 meters. On the North-Eastern side, the bicycle store is set at a higher floor level of +37.200 meters, with a formation level of +35.600 meters.

To understand the proposed basement design, please refer to the sketch in Figure 2-14 along with the cross sections provided below. The proposed basement formation level will be approximately 4 meters below the existing street level on Naas Road. To form the basement structure, the ground around the working area will be sloped with a 1:2 gradient, as depicted in the sections. In cases where limited space makes achieving the required slope impossible, a 450mm Ø contiguous piled wall will be utilized.

The 450mm Ø contiguous piled wall on the South-Eastern boundary will be designed to cantilever during the temporary condition, allowing it to handle surcharge loading. This will eliminate the need for temporary works during construction, enabling bulk excavation of the basement. The excavation will involve the removal of made ground and other underlying layers.

A series of cross-sections (from A-A to G-G) around the boundary of the proposed building demonstrate the relationship between the excavated area, the proposed basement retaining structure, and existing elements such as fences, footpaths, and walls. For safety purposes, a working space of 1 meter is assumed from the edge of the reinforced concrete (RC) retaining wall.

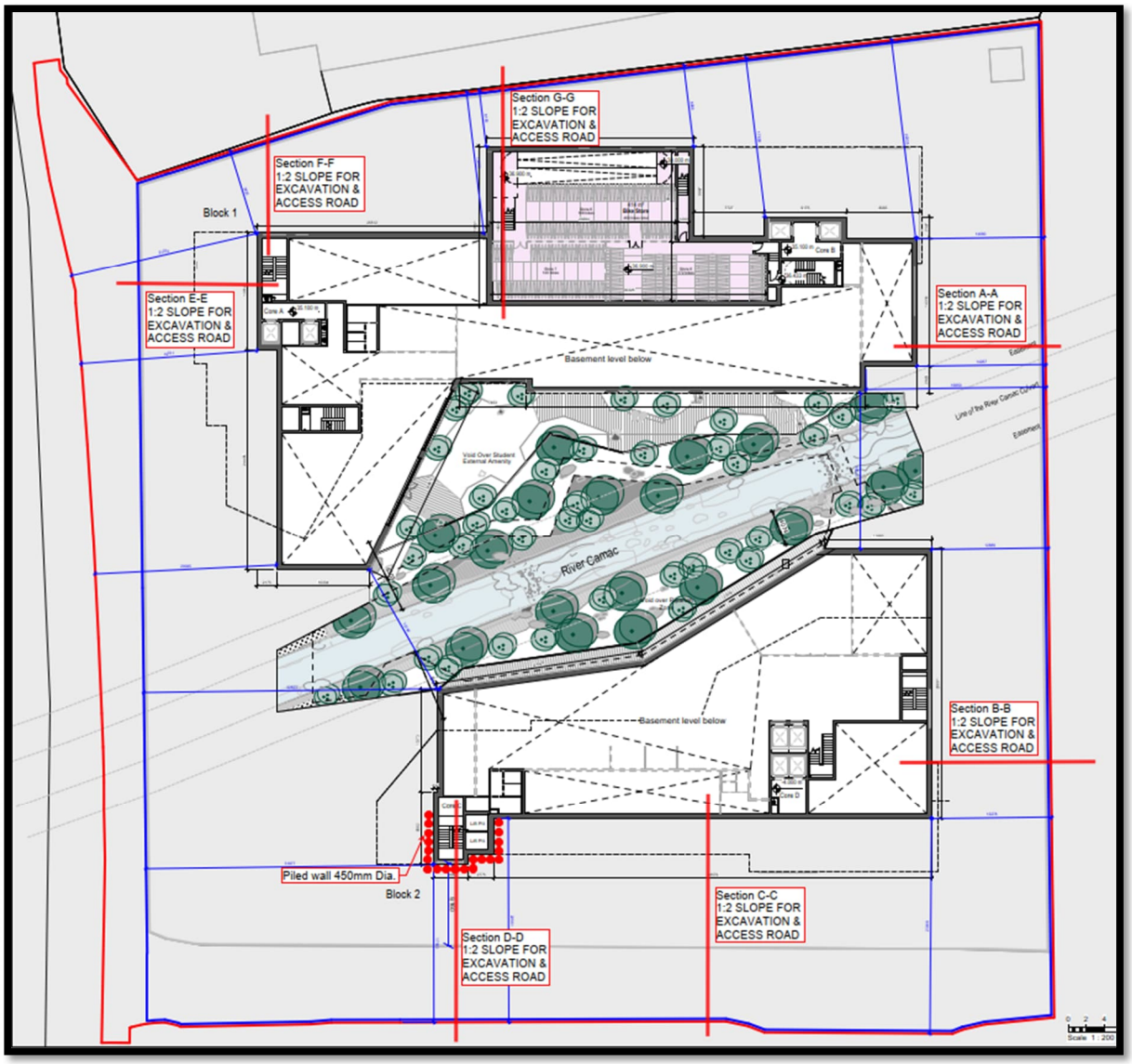
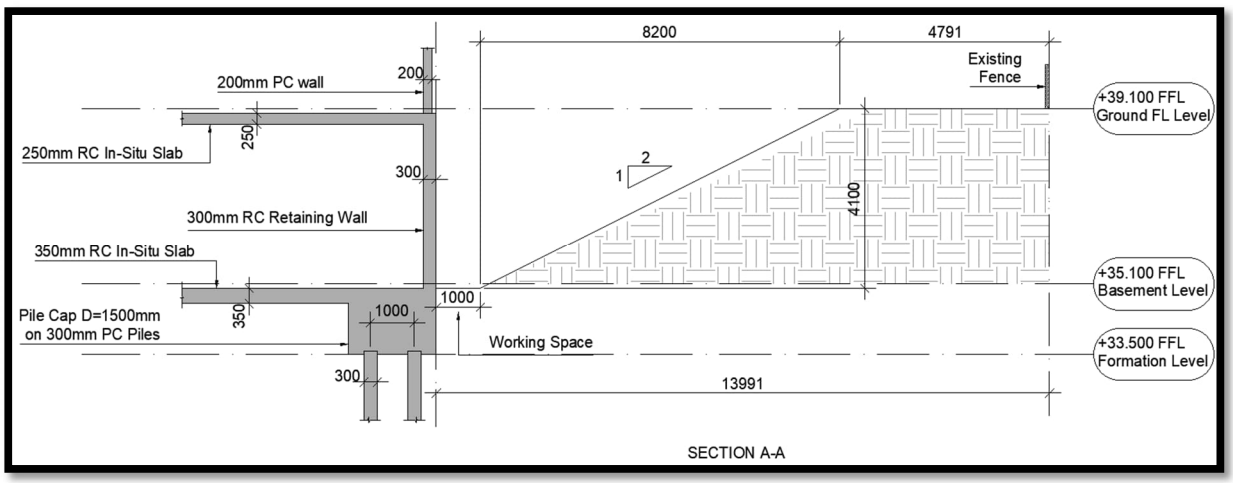
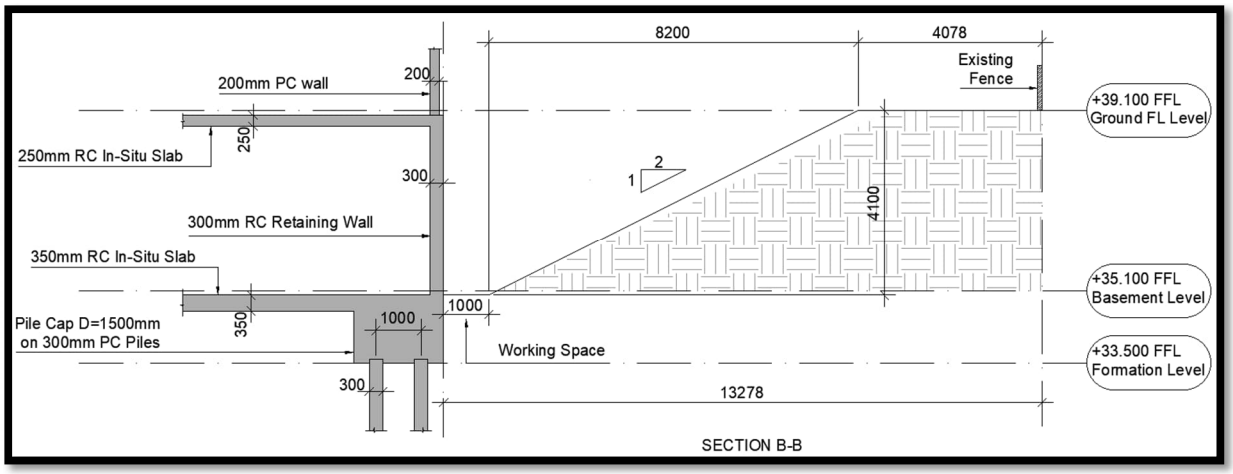
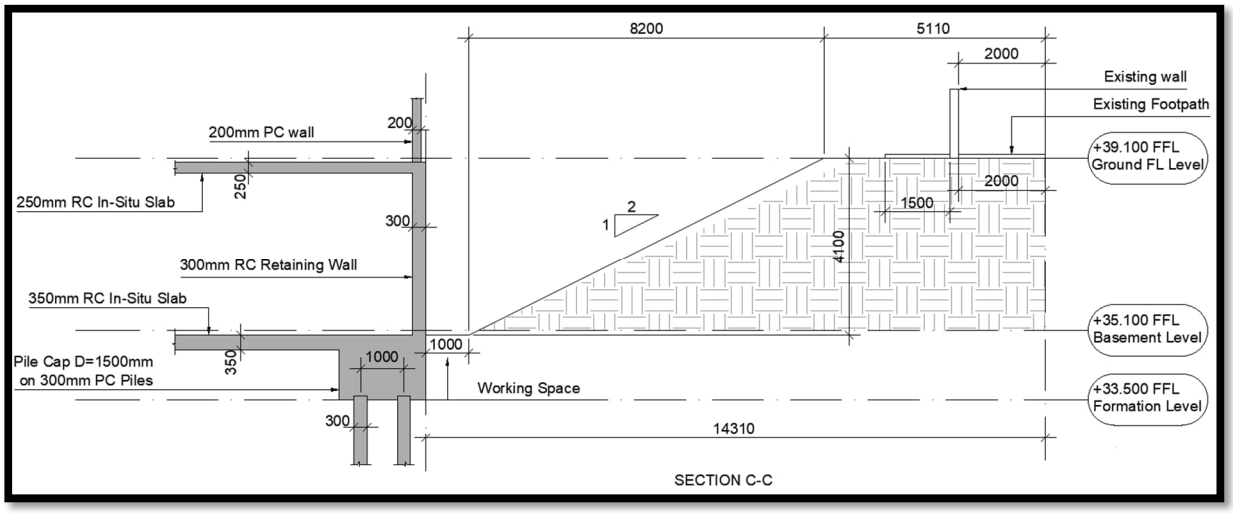


Figure 2-14: Basement boundary Condition Key-plan





SECTION B-B



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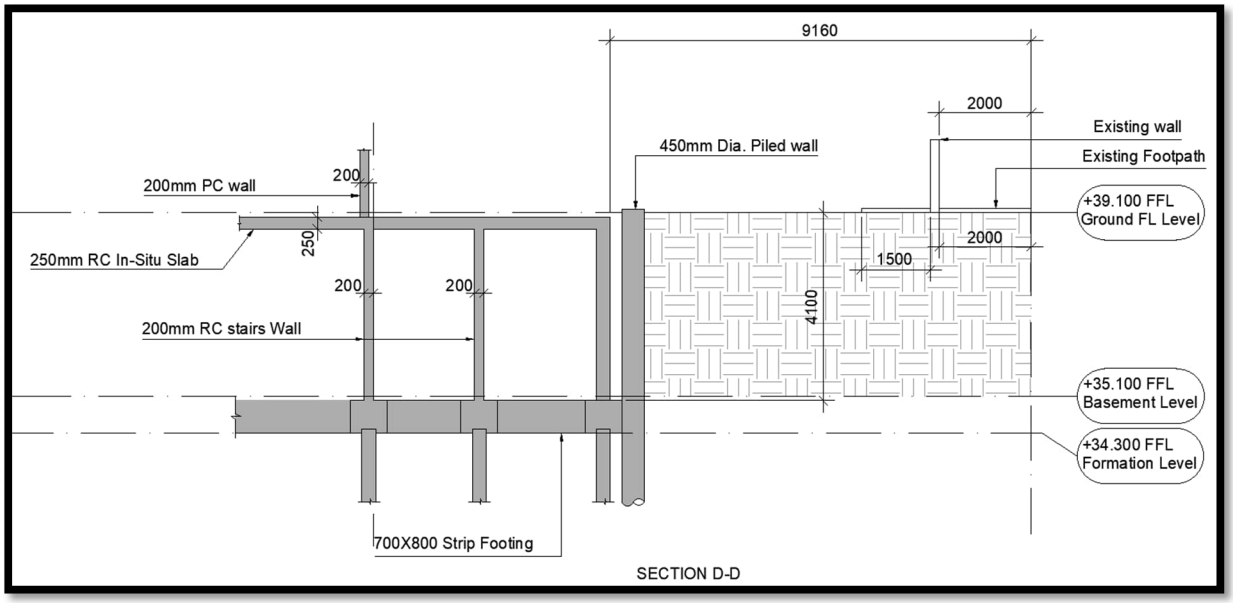

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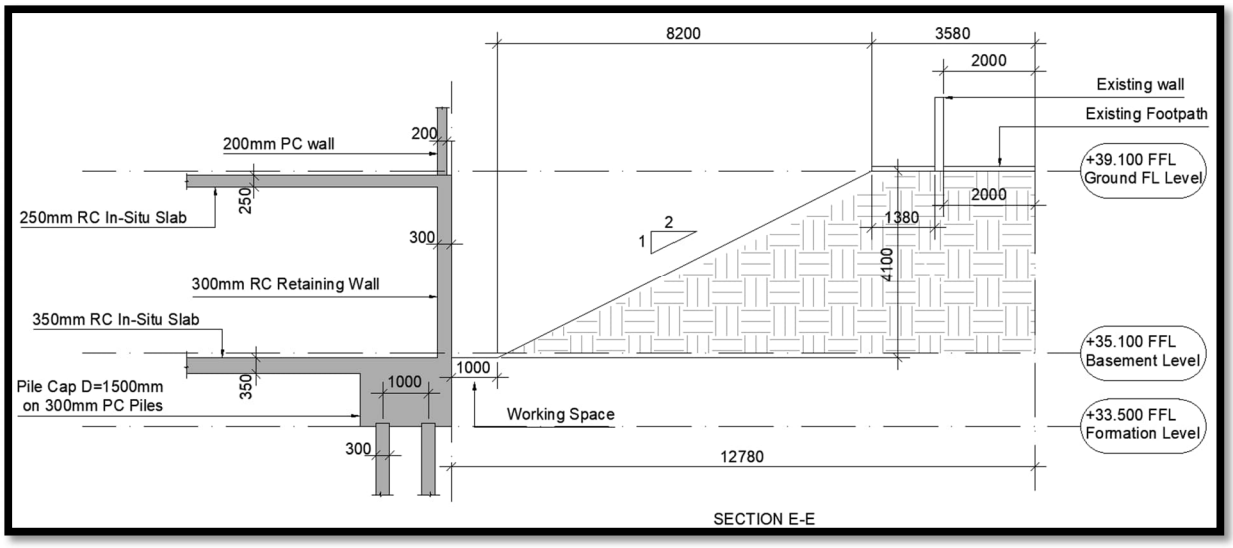

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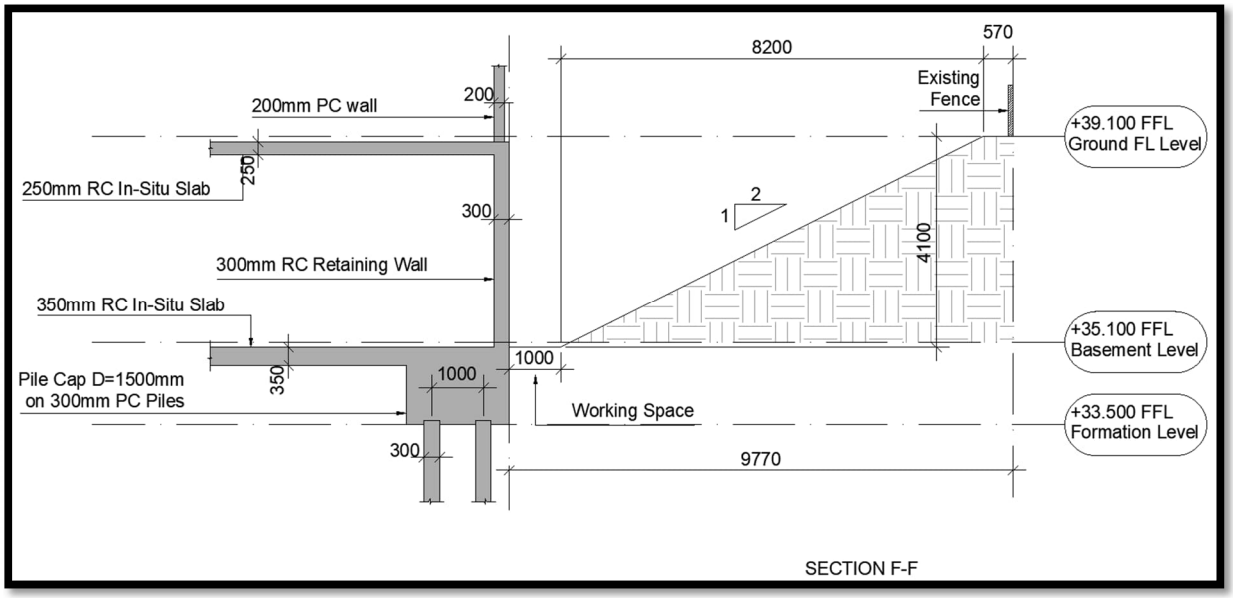

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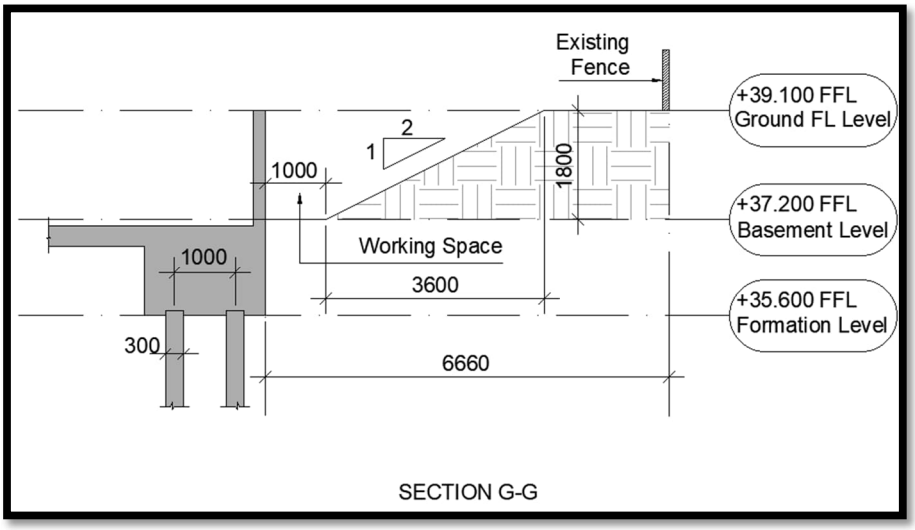


SECTION G-G

2.9 PROPOSED SEQUENCE OF WORK

The proposed sequence of works for the construction of the development consists of the following:

- General site clearance and stripping of topsoil.

- Erection of site hoarding around the perimeter of the site.

- Demolition of existing structure.

- Excavating to uncover the current Camac culvert, as depicted in section 2.8.1. To ensure the stability of the surrounding ground, a sloping gradient with a ratio of 1:2 will be implemented, commencing from a point 5 meters away from the culvert's front face.

- Retaining walls will be constructed on both sides of the culvert.

- Demolition of the existing culvert lid.

- Excavating and creating sloped ground at the land boundaries to reach the necessary formation levels. The sloped ground serves as a temporary work system to counter soil surcharge, as depicted in section 2.8.

- Installation of contiguous piled wall along a portion of the south-eastern boundaries (refer to plan on Figure 2-14). The 450mm Ø contiguous piled wall is designed to cantilever in the temporary condition.

- Installation of the new structure piled foundations.

- Construction of foundations and basement slab and rising elements.

- Construction of ground floor slab.

- Construction of attenuation tank.

2.10 PROPOSED TEMPORARY WORK STRATEGY

As mentioned in section 2.8, the ground will be sloped at a 1:2 ratio to ensure the safety of the working area. A slope stability analysis was carried out using Taylors's method as shown in Figure 2-15, which resulted in a safety factor of 1.4. This factor provides adequate support for our initial assumption, allowing the excavation of the basement to the required formation level.

Additionally, for a section of the South-Eastern boundary where there is insufficient clear distance to achieve the required slope, a local piled wall will be required. This approach will address the limited space concern and ensure stability in that specific area.

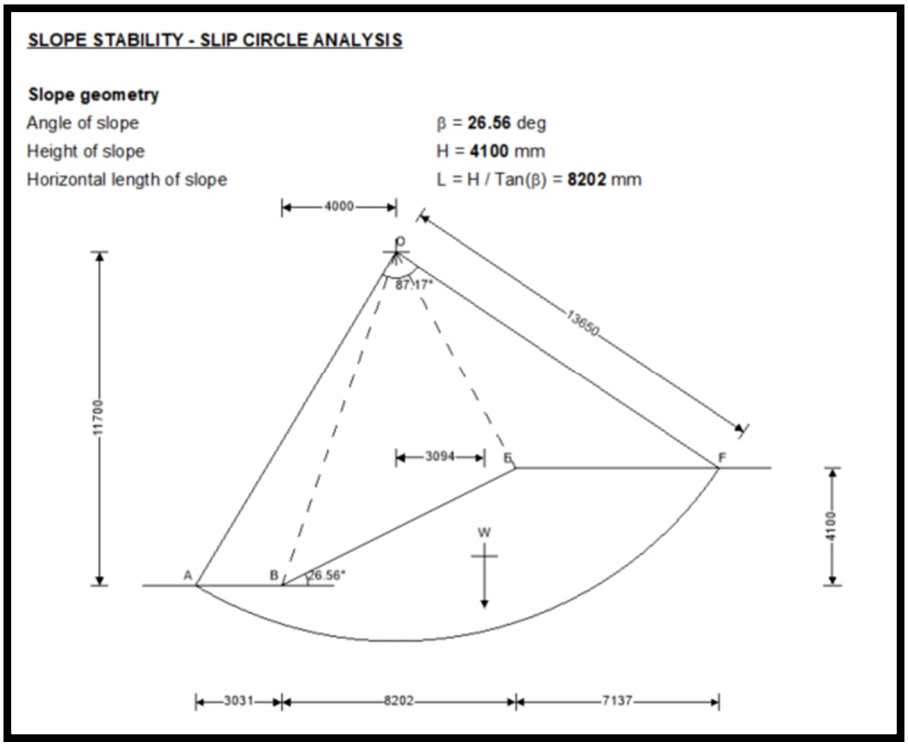


Figure 2-15: Slope Stability Analysis

2.11 CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN

A Construction and Environmental Management Plan has been prepared as part of the planning application by AWN Consulting which notes the precautions regarding dust, noise & vibration mitigation during the building construction including the excavation stage of the basement construction.

As required by the DCC Basement Development Guidance Document, this considers the regulation of noise, air quality and vibration with reference to DCC's "Air Quality Monitoring and Noise Control Units Good Practice Guide for Construction and Demolition".

2.12 POTENTIAL IMPACT

Basement construction can have a wide range of impacts on neighbouring buildings as well as trees in the region. The items contained in Table 2-1 below have been identified as potential issues arising due to the construction of a basement under the following main considerations as outlined in DCC "Basement Development Guidance Document", Section 3.0. Reference has also been made to DCC Development Plan 2022-2028, Appendix 9 "Basement Development Guidance".

- Groundwater flow
- Land stability
- Surface water flow & flooding
- Cumulative effects of adjacent basement construction
- Construction stage impacts (e.g. temporary works)

Impact		Relevant to site	**Explanation/Mitigation**
Groundwater **fl**ow			
(i)	Dewatering and impact on groundwater and adjacent structures.	No	No groundwater was encountered in the trial pit excavations up to 4.3m deep. Only a small amount of groundwater dewatering is expected and this will have no effect on the surrounding properties.
(ii)	Discharge of groundwater into sewers or watercourses or through ground water discharge.	Yes	Any water collected and pumped from the excavation area will be transferred to a settlement tank prior to discharge to the existing adjacent drainage network as per agreement with the Local Authority.
(iii)	Impacts on groundwater flow before, during and after construction.	No	Due to the very low permeability of the natural boulder clay overburden, and the fact that the excavation will not reach the bedrock, groundwater flow is negligible across the proposed basement dig. Perched water may exist locally in shallow pockets in the made ground on top of the boulder clay, and this infiltrates slowly over time into the underlying clays. This is not connected to the groundwater table. After the excavation of the basement, it is expected pumping will only be required to remove surface water that enters the excavation during construction. No specific dewatering for groundwater ingress will be necessary. After construction, following completion of the basement construction, the original situation will return in the area surrounding the basement - surface water run-off at ground level not collected by drainage systems will infiltrate as before and become perched in the underlying site sub-soils.
Land Stability			
(i)	Impact of deep excavations on adjacent	No	The proposed excavation is 5.5m in depth approx. The site is separated from two sides

	structures and assets and utilities.		from nearby buildings by a laneway. For the remaining two sides, there are no adjacent basements in the two surrounding buildings so no impact is expected there.
(ii)	Land stability and ground movements.	No	The combination of piled walls and sloped ground will ensure that there are no stability issues.
Surface waterflow & flooding			
(i)	Change to quality or volume of waters discharging to downstream watercourse in the catchment	Yes	The development will include Sustainable Drainage measures - refer to BMCE Civil Engineering Infrastructure Report, Surface Water Management Report (report no. 22.219-IR-01) designed to both improve quality and reduce quantity of surface water run-off from the site. These SuDS measures will ensure that the discharge to sewer and/or downstream watercourse is intercepted and appropriately attenuated to QBar or below, mitigating any negative impact.
(ii)	Discharge of additional water to the ground or at a deeper level due to more permeable pathways	No	The aim of daylighting the Camac is to try restore the natural groundwater profile, and natural plant life along the river banks so there will be a tendency for some ground water to discharge to the watercourse, particularly for the section of channel either side of the river. However, this is viewed as a positive impact as the natural land run-off and infiltration is restored.
Cumulative effect of adjacent basement construction			
(i)	Cumulative effects of adjacent basement constructions.	No	The surrounding buildings either do not have basements or are of a sufficient distance from the site to not have any significant impact.
Construction Stage Impacts (Temp Works)			
(i)	Temporary works and use of piling.	No	Sloped ground and piled walls are proposed to the basement excavation until the ground floor slab is poured.
(ii)	Potential for hazardous/contaminated ground.	Yes	From the waste classification report, Two of the samples tested (at TP01) were Class D Hazardous. All materials will be monitored closely on site and disposed to an appropriate facility where necessary.
(iii)	Surface water flow and monitoring.	Yes	During the process of daylighting the Camac river, the following mitigations shall be applied: - Sandbags will be installed on both sides of the culvert, creating a new central river channel. Additionally, protective sheeting will be placed over the top of the river channel. A

		temporary working platform and handrails will be installed to facilitate the demolition part.
(iv) Existing mature trees	No	According to the tree impact report, the site comprises 34 trees which are in poor condition, classified as young (Maximum 45 years old). With that being noted, there is no capacity to provide minimum tree protection for any trees across the site.
Heritage Impacts		
(i) Works affecting protected structure or historic building	No	The protected structures within the study area are far from the construction site and will not be impacted by the construction of the basement.
(ii) Works affecting archaeological or heritage material.	Yes	According to the Archaeological, Architectural and Cultural Heritage Impact Assessment, the development site is in an area of archaeological potential. The following mitigations are to be followed: - The site shall be subject to a programme of pre-construction archaeological test trenching, under licence, by a suitably qualified archaeologist. - A report on the results of the test trenching programme shall be submitted to Dublin City Council, the Heritage and Planning Division, Department of Housing, Local Government and Heritage (DHLGH) and the National Museum of Ireland prior to the commencement of the main construction programme. - Any such further mitigation measures required must be agreed in advance with the City Archaeologist (Dublin City Council) and the National Monuments Service (DHLGH).
Biodiversity Impacts		
(i) Impact on existing green infrastructure and mature trees	No	No Impact. All the trees on site are young and in poor condition.
Land Use Impacts		
(i) Appropriate use of basement and in the interests of proper planning and sustainable development.	No	The basement will serve as amenity space, cultural space, storage, bike space and services. The use is appropriate.

Table 2-1

These are discussed as follows, with mitigation measures summarised in the next section.

Five impacts have been highlighted in the scoping summary presented above. These impacts identified above are considered below in terms of the following characteristics (as defined in DCC Basement Development Guidance Document Section 10):

- Quality (Positive, Neutral, Negative)
- Significance (Imperceptible, Slight, Moderate, Significant, Profound)
- Duration (Temporary, Short, Medium, Long, Permanent)
- Type (Cumulative, Do Nothing, Indeterminable, Irreversible, Residual, Synergistic, Worst Case).

Impact	Quality	Significance	**Duration**	Type
Discharge of groundwater into sewers or watercourses or through ground water discharge.	Neutral – no noticeable change to the environment	Imperceptible	Temporary	Residual
Change to quality or volume of waters discharging to downstream watercourse in the catchment	Positive – SuDS provides net improvement	Imperceptible	Permanent	Residual
Potential for hazardous/contaminated ground.	Neutral –disposal of any contaminated material will be by licenced contractors to licenced landfill facilities	Imperceptible	Permanent	Residual
Surface water flow and monitoring	Positive – daylighting the Camac river will restore the natural groundwater profile, and natural plant life along the river banks.	Imperceptible	Permanent	Residual
Works affecting archaeological or heritage material	Positive – According to the Archaeological, Architectural and Cultural Heritage Impact Assessment, receptor CH32 indicates a high baseline value. However, this high value refers to the Culverted Camac river which will be daylighted as mentioned in the previous point. Further information about the other receptors will be provided in the report prepared by the licensed archaeologist.	Imperceptible	Permanent	Residual

Table 2-2

2.13 MITIGATION MEASURES

There are many mitigation measures relevant to the range of issues possibly caused by basement construction. Only the ones relevant to the identified impacts are discussed below:

- Changes to Surface Water Volumes/Quality: The development will provide blue roofs with a green roof finish to capture & treat rainwater and attenuate the outfall to the local sewer network to QBar (the greenfield runoff rate), as set out in the BMCE Infrastructure report 22.219-IR-01 which accompanies the application. All SuDS measures are designed with reference to CIRIA C753 The SuDS Manual.

- Potential for hazardous/contaminated ground: All excavated material will be classified (Inert, Non-Hazardous or Hazardous) for disposal by a licensed contractor to a licensed facility.

- Due to the development site's location in an area of potential archaeological significance, several mitigations will be implemented. The site will undergo pre-construction archaeological test trenching conducted by a qualified archaeologist under proper licensing. The results of this trenching program will be submitted to Dublin City Council, the Heritage and Planning Division of the Department of Housing, Local Government, and Heritage (DHLGH), and the National Museum of Ireland before the main construction commences. Any additional mitigation measures deemed necessary will be pre-approved by both the City Archaeologist (Dublin City Council) and the National Monuments Service (DHLGH) to ensure the preservation and protection of any significant archaeological findings on the site.

During the process of daylighting the river Camac, several mitigations will be employed. To create a new central river channel, sandbags will be placed on both sides of the culvert, and protective sheeting will be installed over the top of the river channel. To facilitate the demolition phase, a temporary working platform with handrails will also be installed. These measures are intended to ensure the safe and controlled restoration of the river while minimizing potential risks and environmental impacts.

2.14 CONCEPTUAL GROUND MODEL

It is not deemed necessary to develop the ground model for this site, as no ground movement assessment is required for the following reasons:

- A combination of sloped ground and piled walls will ensure that there will be only very limited movement which will be closely monitored. A slope stability analysis was performed to check the adequacy of the assumption and was found to be safe.

- The proposed excavation is 5.5m in depth approx. The site is separated on two sides from nearby buildings by a laneway. For the remaining two sides, there are no adjacent basements in the two surrounding buildings so no impact is expected there. The basement will be supported on deep bored piled foundation. On this basis, ground movement and/or building damage will is not a significant risk as a result of the basement construction and no further assessment is warranted.

3 SITE INVESTIGATION, DESKTOP STUDY AND MONITORING

A desktop study is out in the succeeding sections, reviewing all available geological information followed by local and site-specific site investigations.

3.1 GEOLOGICAL DESK STUDY

Published Information

3.1.1 Bedrock Geology

The GSI online bedrock map of the site is shown in Figure 3.1 below and indicates that the site is underlain by the Lucan Formation – Dark Limestone and Shale (calp).

Figure 3-1: Bedrock Map of site by GSI (Geological Survey Ireland)

3.1.2 Subsoil (Quaternary Geology)

The GSI online quaternary sediment map of the area is shown below and indicates that the overburden on the site is overlain by Urban – Made Ground. This is a typical blanket classification in urban areas. The natural overburden is classified in the site investigation detailed elsewhere within the report.

3.2 SITE SPECIFIC INVESTIGATION

A site investigation was carried out on the site by GII Ltd. Details are set out in Section 2.7 of this report and an extract is contained in Appendix 1. The SI report contains details of inspection pits (trial pits), borehole results, laboratory test results and environmental testing.

3.3 HYDROGEOLOGICAL DESK STUDY

3.3.1 Bedrock Aquifer & Groundwater Vulnerability

Groundwater can be defined as water that is stored in, or moves through, pores and cracks in sub soils. Aquifers are rocks or deposits that contain enough void spaces, and which are permeable enough to allow water to flow through them in significant quantities. The potential of the rock to store and transport water is governed by permeability.

The overburden ground conditions have been described above as the typical quaternary deposits in the Dublin region – Dublin Boulder Clay. This has a relatively low permeability except for some localized granular layers.

The underlying rock has been described previously as Calp Limestone. The GSI Bedrock Aquifer map is shown in Figure 3-2 indicating that the site is underlain by a Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones.

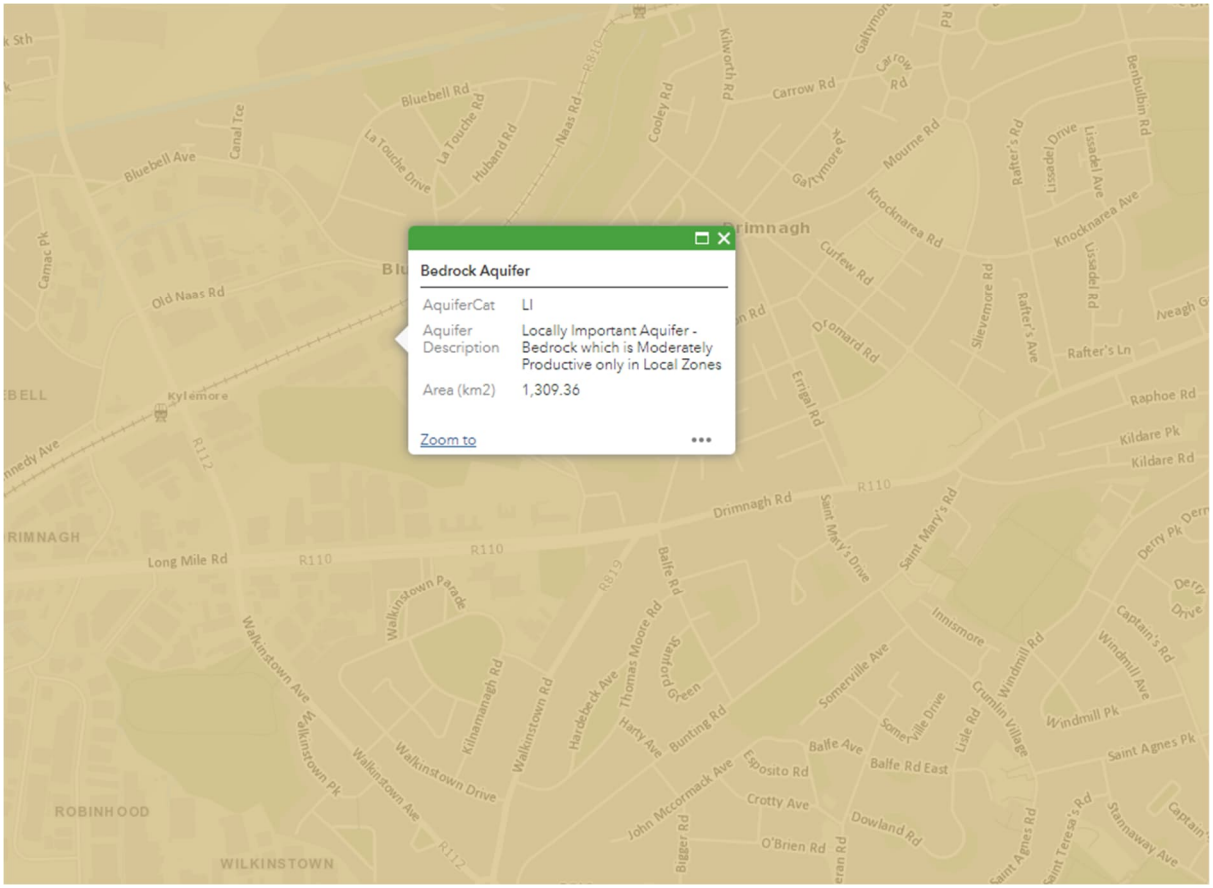


Figure 3-2: Bedrock Aquifer map of site by GSI (Geological Survey Ireland).

Aquifer or groundwater vulnerability is a relative measure of the ease with which the groundwater could be contaminated by human activity and depends on the aquifer's intrinsic geological and hydrogeological characteristics. The vulnerability is determined by the permeability of any overlying deposits. For example, bedrock with a thick, low permeability, clay-rich overburden is less vulnerable than bedrock with a thin, high permeability, gravelly overburden.

Groundwater vulnerability categories are defined by the GSI as:

X - Extreme rock at or near surface or karst

E - Extreme

H - High

M - Moderate

L - Low

These categories are used for mapping purposes and in the assessment of risk to ground waters. The classifications are based on the thickness and permeability of the sub-soils overlying the aquifer. The GSI has classified the aquifer vulnerability as moderate.

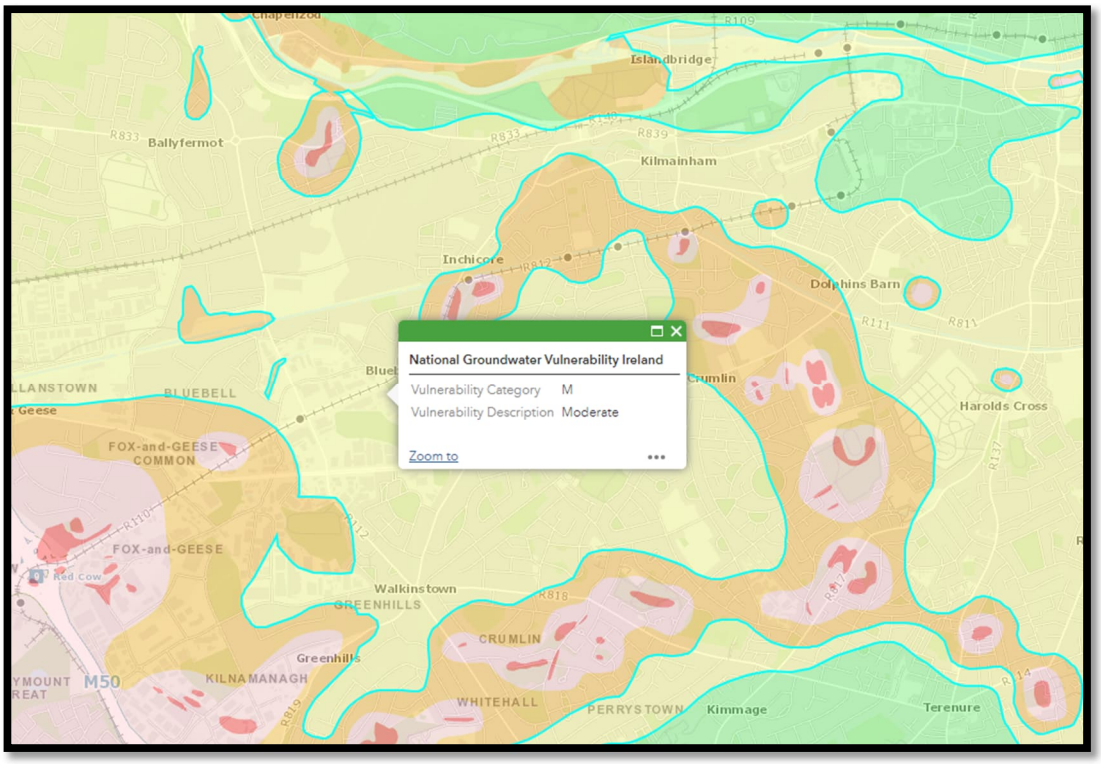
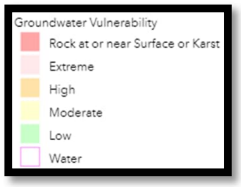


Figure 3-3: Bedrock Aquifer Vulnerability map of site by GSI (Geological Survey Ireland) Site location

LEGEND



The depth to rock as determined in the SI report is between 8m & 17m below ground level. This suggests that a 'Moderate' vulnerability rating is accurate.

Vulnerability Rating	Hydrogeological Conditions				
	Subsoil Permeability (Type) and Thickness			Unsaturated Zone	Karst Features
	High Permeability (sand/gravel)	Moderate Permeability (e.g. sandy subsoil)	Low Permeability (e.g. Clayey subsoil, clay, peat)	(Sand/gravel aquifers only)	(<30 m radius)
Extreme (E)	0 – 3.0 m	0 – 3.0 m	0 – 3.0 m	0 – 3.0 m	-
High (H)	>3.0 m	3.0 - 10.0 m	3.0 – 5.0 m	>3.0 m	N/A
Moderate M)	N/A	> 10.0 m	5.0 – 10.0 m	N/A	N/A
Low (L)	N/A	N/A	>10.0 m	N/A	N/A
Notes: *(1) N/A = not applicable* *(2) Precise permeability values cannot be given at present*					

Table 3-1: Aquifer vulnerability criteria (DELG/EPA/GSI, 1999)

3.3.2 Recharge

Effective rainfall is the amount of rainfall available as either recharge to ground or run-off to surface water after evaporation or taken up by plants. For the site in question the value is 350mm/yr (GSI online database). The recharge coefficient, which is the proportion of effective rainfall to recharge groundwater, is estimated at 20% on the site.

Recharge is the amount of rainfall that replenishes the aquifer; it is a function of the effective rainfall, the permeability and thickness of the subsoil and the aquifer characteristics. According to GSI online database the maximum recharge capacity to the bedrock is 200 mm/yr at the site, with the average recharge being 70mm/yr.

3.4 HYDROLOGICAL DESK STUDY

3.4.1 **Existing Hydrological Data**

The Camac river flow direction is shown in Figure 3-4 below. It is noted that one branch is culverted and is passing through the site. The site is within the Liffey and Dublin Bay Catchment area which is the ultimate destination for surface water flowing from the site.

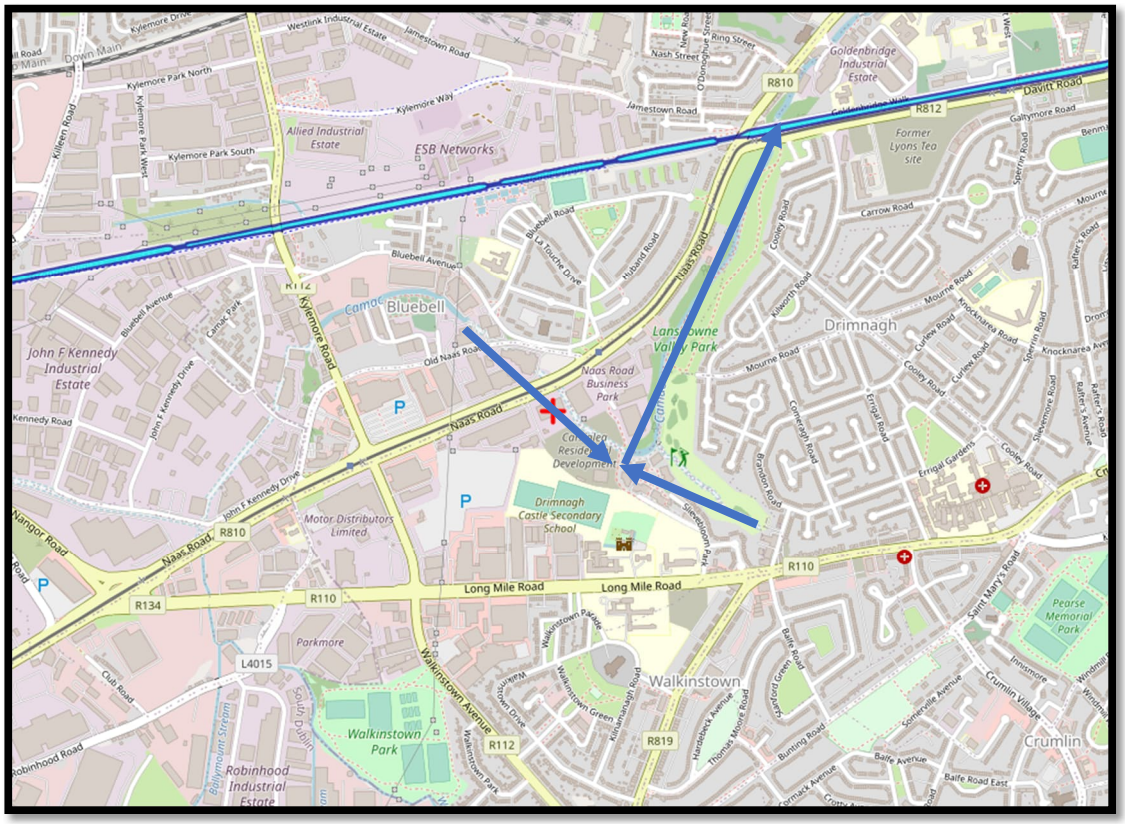


Figure 3-4: Rivers Map (Environmental Protection Agency).

3.4.2 Existing Surface Water

As mentioned previously the existing drainage network on the subject site will be decommissioned.

A new surface water network system which incorporates SUDS will be designed to accommodate the proposed development. This is detailed in the BMCE Infrastructure & Surface Water Management Report 22.219-IR-01 which is part of the planning application documentation.

3.5 FLOOD RISK ASSESSMENT

A detailed flood risk assessment has been carried out by BMCE and is contained in the separate report which is included with the planning application.

4 IMPACT ASSESSMENT

4.1 GROUND FLOW IMPACTS

As noted in Section 2.7, groundwater monitoring was carried out as part of the S.I.. Standpipes in Boreholes 01 & 02 indicated groundwater at 4.91m BGL in BH03 in the Made Ground and at 4.29m BGL in BH02 in the top layers of the boulder clay. Based on the soil characteristics of the site and experience elsewhere, these high levels indicate perched ground water on top of the stiff to hard impermeable boulder clays.

The proposed basement will have no impact on this condition outside of the extent of the basement as following completion this scenario will re-occur with natural perching of the surface water run-off in the surrounding clay layers before eventual slow infiltration to the underlying rock layers at significant depths below the site and proposed basement.

4.2 LAND STABILITY AND GROUND MOVEMENT

As set out in Section 2.8, the proposed basement excavation, which is circa 5.5m deep, is to be stabilized by sloping the ground in 1:2 gradient. The slope stability was assessed using Taylor's method and the results were found to be acceptable. Moreover, In cases where limited space makes achieving the required slope impossible, a 450mm Ø contiguous piled wall will be utilized.piled walls will be designed as cantilevers for a maximum lateral deflection of 15mm.

As noted in 2.12, the site is separated from nearby buildings on two sides by Naas Road laneways from the north side and on Carriglea Industrial Estate from the west side. For the remaining two sides, the commercial building on the east side and Carriglea residential development on the south side, there are no surrounding basements and the excavation will be protected by a sloped ground in combination with a piled wall.

On the basis of the above, ground movement and/or building damage will is not a significant risk as a result of the basement construction and no further assessment is considered necessary.

4.3 SETTLEMENT AND HEAVE

The mechanism for subsidence related to groundwater drawdown leading to effective stress increases which consolidates the affected material is not a mechanism that occurs in Dublin Boulder Clay due to the very high strength and slightly over-consolidated nature of the glacial deposits (consolidated by the weight of ice during recent glacial periods). This mechanism occurs in soft, high plasticity silts (and less so clays), none of which are present in the ground at this site.

On this basis, the foundation loads of the proposed building which are deep bored piles are not expected to increase stress to a degree that would cause consolidation within the soils or reduce permeability or groundwater flow.

Heave of clays following excavations which removes weight from an over-consolidated deposit is an issue in certain soils. Typically, this occurs in sensitive highly plastic uniform clays and silts and can occur over several decades. In the deposits where this is an issue it is well known by the local engineering professionals (London Clay and Mexico City Clay being two of the best know examples).

Heave is not an issue in Dublin Boulder Clay. This is due to the well graded matrix (Clay to Boulders) and consequent very low plasticity of the deposit. Despite the material being slightly over-consolidated by the glacial lodgement till deposition environment, its stress state is not one dimensional vertical over-consolidation of the type which occurs in heave sensitive deposits. Rather it is a more complex stress due to the shearing nature of the glacial movement during deposition.

The absence of a history of heave problems in Dublin leads to the conclusion that this will not be an issue for construction of this basement.

4.4 SURFACE FLOW AND FLOODINGS IMPACTS

Please refer to the BMCE Infrastructure Report 22.219-IR-01, which shows how the proposed development will comply with the requirements of the Greater Dublin Strategic Drainage Study (GDSDS) and demonstrates that the post-development discharge from the site will be an improvement on the existing 'brownfield' flow.

4.5 STRUCTURAL DAMAGE BEYOND THE SITE BOUNDARY

Structural damage to buildings is not considered to be a significant risk and does not require a damage assessment.

4.6 CONSTRUCTION RELATED IMPACTS

A list of typical Construction Stage impacts for basements are listed below:

- Temporary works
- Noise, air quality and vibration
- Traffic during construction
- Discharge of groundwater into sewers or watercourses
- Potential for hazardous and contaminated ground

These issues, where relevant are addressed in the Construction & Environmental Management Plan which also forms part of the planning application documentation.

4.7 CUMULATIVE IMPACTS OF THE BASEMENT EXCAVATION

The DCC Basement Development Guidelines require that "cumulative construction impacts of adjacent development should also be considered" and that "the cumulative impacts of the incremental development of basements (existing and planned) in close proximity to each other should be assessed."

Appendix 9 of the current DCC Development Plan 2022-2028, 'Basement Development Guidance', defines a number of scenarios in relation to groundwater movement and levels around a basement and possible cumulative impacts when others nearby are also considered. As the basement is isolated from others by the surrounding roads Scenario B will apply.

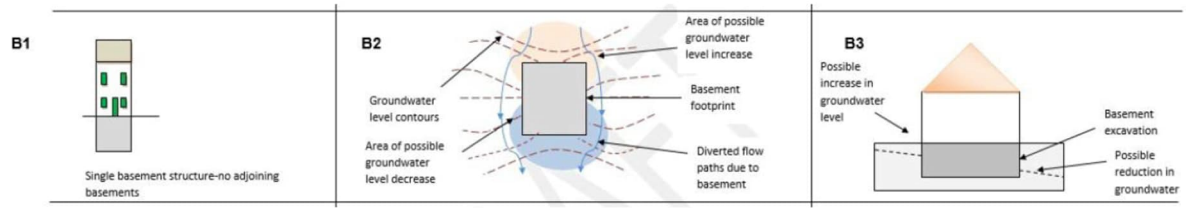


Figure 4-1: Extract from the DCC Basement Development Guidance document

The groundwater table is below the single level basement and will not be impeded by its construction. Perched groundwater travelling through the made ground layer overlying the boulder clay will not be significantly impeded by the new basement given the granular and permeable nature of this material.

There are therefore no anticipated cumulative impacts of basement development at the subject site.

5 CONCLUSION AND RECOMMENDATIONS

5.1 NON-TECHNICAL SUMMERY

BMCE have prepared a BIA in respect of the proposed basement works at a site on Carriglea Business Park, Naas Road, Dublin 12. The existing office building at site will be demolished, along with a smaller outbuilding at the southwest corner. The site also contains the existing Camac river culvert which is proposed to be daylighted.

In this report, BMCE have shown that there is no significant impact from the basement construction proposal. Based on our analysis, the proposed basement can be built safely without causing unacceptable detriment to the local surface water conditions, land stability, groundwater conditions, or adjacent structures.

The proposed basement is considered acceptable in relation to groundwater flow. There are no concerns regarding slope stability given the ground will be sloped and a piled wall will be built where necessary.

The key recommendations in respect of the proposed basement development are summarized as follows:

• The proposed works should be tendered to competent contractors with experience in similar schemes.
• A cantilever design for the piled wall is assumed at this this stage. If detailed design shows that the lateral deflection of the wall exceeds 15mm then temporary raking steel props will be employed to support the wall during the basement construction.

5.2 BASEMENT AUDIT CATEGORISATION

As outlined in 2019 DCC publication “Basement Development Guidance Document” the size, scale and nature of basement development are to be split into three categories, A, B and C. The level of detail contained within a BIA for a particular development shall be dependent on which category the development fits into. The assigned/referenced category for a development should be appropriate to the proposed development and the scale of the potential impacts identified during the scoping and site investigation stages.

Category A

Residential or commercial development with single storey basement where the Scoping Stage of the Basement Impact Assessment indicates no matters of concern which need further investigation. Submitted BIA anticipates no significant impact relating to:

- land stability or impacts, buildings or infrastructure;
- groundwater flow or surface water flooding and underground tunnels

Category B

Residential single basement or commercial development with single or double basement where the Scoping Stage of the Basement Impact Assessment identifies matters of concern which need further investigation. Submitted BIA anticipates potential impact:

- to a listed building;
- on land stability;
- on groundwater flow;
- on potential for surface water flooding;
- on underground tunnels or infrastructure; and
- cumulative impact on ground stability and the water environment

Detail of groundwater flows due to cumulative effects shall need to be accounted for in the basement design. In order to make basement construction fair and equitable for all parties, the Planning Authority shall require a Hydrogeological Assessment of the site to determine the extent of existing groundwater passing through the site predevelopment (relative to depths etc.). Each development shall then be required to account for the groundwater flows and volumes of groundwater below and through their own site ensuring that there shall be minimal change to the groundwater flows, levels and volumes post-completion of the works when compared to the pre-development scenario. These proposals should be described in detail within the BIA.

Category C

Exceptional development (in terms of geometry, area, depth, location/position or complexity) which may be a single or double basement with potential complications. Submitted BIA anticipates potential for significant impact:

• to a listed building;

• on other buildings and or with land stability issues;

• to groundwater flow and potential for surface water flooding;

• underground tunnels or infrastructure; cumulative basement impacts;

• relating to significant technical issues raised by third parties.

With reference to Section 7.2 of the 2019 DCC Basement Development Guidance Document, the proposed basement falls under Category A based on the following rationale:

• This BIA has anticipated no significant impact relating to:

- Land stability or impacts, buildings or infrastructure
- Groundwater flow or surface water flooding and underground tunnels

5.3 SUBMISSION CHECKLIST

The checklist below is taken from Section 5.0 of Appendix 9 of the current DCC Development Plan 2022-2028, 'Basement Development Guidance'

	Item	Yes/No
1	Description of proposed development.	Yes
2	Plan showing boundary of development including any land required temporarily during construction.	Yes
3	Plan, maps and photographs to show the location of basement relative to surrounding structures.	Yes
4	Plans, maps and or photographs to show topography of surrounding area with any nearby watercourses/waterbodies including consideration of the relevant maps on the SFRA (Vol 7).	Yes
5	Plans and sections to show foundation details of adjacent structures (reference to pre-condition reports).	Yes
6	Plans and sections to show layout and dimensions of proposed basement and all proposed foundation details.	Yes
7	Modelling evaluation of baseline groundwater levels and flows.	No (Note 1)
8	Modelling and evaluation of groundwater levels and flows during construction and following construction of basement.	Yes (Note 2)
9	Programme of enabling works and construction and restoration.	No (Note 3)
10	Identification of potential risks to land stability (including surrounding structures and infrastructure and groundwater flooding).	Yes
11	Assessment of potential risks on neighboring properties and surface groundwater.	Yes
12	Identification of significant adverse impacts.	Yes
13	Ground Investigation Report and Conceptual Site Model including: • Desktop study • exploratory hole record • Results from monitoring the local groundwater regime • Confirmation of baseline conditions	Yes

	• Factual site investigation report	
14	Ground Movement Assessment.	Yes
15	Plans, drawings, reports to show extent of affected area.	No (Note 4)
16	Construction Sequence Methodology (CSM) referring to site investigation and containing basement, floor and roof plan, sections, sequence of construction and temporary works.	Yes
17	Proposals for monitoring during and post construction (groundwater movement and levels, ground movement, vibration with comparisons to baseline) – limits to be advised in BIA and monitored. Any breaches should be reported to DCC e&T.	Yes (Note 5)
18	Consideration of potential impacts to protected structures, conservation areas and archaeology where relevant.	Yes
19	Consideration of potential impacts to biodiversity and amenity.	Yes (Note 6)
20	Construction Management Plan.	Yes
21	Impact assessment and specific mitigation measures to reduce or offset significant adverse impacts with comparisons to baseline study.	Yes
22	Provision for monitoring post construction (post-condition surveys, groundwater levels/flows etc.).	Yes
23	Non-technical summary of full report.	Yes

Note 1: Conceptual model deemed not necessary. Refer to Section 2.14

Note 2: This is noted in the Construction & Environmental Management Plan (CEMP).

Note 3: Programme of works to be agreed post-planning.

Note 4: Plans, drawings, reports to show extent of affected area not required.

Note 5: This is noted in the Construction & Environmental Management Plan (CEMP).

Note 6: for the positive impacts on the biodiversity and amenity in this urban site associated with the daylighting of the Camac culvert, refer to the Stephen Diamond & Associates, AWN & Enviroguide reports which are included with the planning application.

6 APPENDIX 1 GEOTECHNICAL REPORT & WASTE CLASSIFICATION REPORT

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Ground Investigations Ireland

Former Gowan House Site

Barrett Mahony

Ground Investigation Report

July 2023

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DOCUMENT CONTROL SHEET

Project Title	Former Gowan House Site
Client	Barrett Mahony
Project No	12689-03-23
Document Title	Ground Investigation Report

Rev.	Status	Author(s)	Reviewed By	Approved By	Office of Origin	Issue Date
B	Final	M Keating	S Kealy	C Finnerty	Dublin	07 July 2023
A	Interim	M Keating	S Kealy	C Finnerty	Dublin	12 June 2023

Ground Investigations Ireland Ltd. present the results of the fieldworks and laboratory testing in accordance with the specification and related documents provided by or on behalf of the client The possibility of variation in the ground and/or groundwater conditions between or below exploratory locations or due to the investigation techniques employed must be taken into account when this report and the appendices inform designs or decisions where such variation may be considered relevant. Ground and/or groundwater conditions may vary due to seasonal, man-made or other activities not apparent during the fieldworks and no responsibility can be taken for such variation. The data presented and the recommendations included in this report and associated appendices are intended for the use of the client and the client's geotechnical representative only and any duty of care to others is excluded unless approved in writing.

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APPENDICES

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Appendix 2	**Trial Pit Records**
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Appendix 6	**Laboratory Test Records**
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1.0 Preamble

On the instructions of Barrett Mahony Consulting Engineers, a site investigation was carried out by Ground Investigations Ireland Ltd., between April and May 2023 at the site of the proposed apartment development at Carriglea Business Park, Dublin 12.

2.0 Overview

2.1. Background

It is proposed to construct a new residential development with associated services, access roads and car parking at the proposed site. The site is currently occupied by an existing building and carpark. The proposed construction is envisaged to consist of piled foundations and pavement make up with some local excavations for services and plant.

2.2. Purpose and Scope

The purpose of the site investigation was to investigate subsurface conditions utilising a variety of investigative methods in accordance with the project specification. The scope of the work undertaken for this project included the following:

- Visit project site to observe existing conditions
- Carry out 10 No. Trial Pits to a maximum depth of 3.30m BGL
- Carry out 2 No. Slit Trenches to determine the depth of an existing Culvert
- Carry out 2 No. Soakaways to determine a soil infiltration value to BRE digest 365
- Carry out 3 No. Cable Percussion boreholes to a maximum depth of 10.0m BGL
- Carry out 3 No. Rotary Core Boreholes to a maximum depth of 16.60m BGL
- Installation of 2 No. Groundwater monitoring wells
- Geotechnical & Environmental Laboratory testing
- Report with recommendations

3.0 Subsurface Exploration

3.1. General

During the ground investigation a programme of intrusive investigation specified by the Consulting Engineer was undertaken to determine the sub surface conditions at the proposed site. Regular sampling and in-situ testing was undertaken in the exploratory holes to facilitate the geotechnical descriptions and to enable laboratory testing to be carried out on the soil samples recovered during excavation and drilling.
The procedures used in this site investigation are in accordance with Eurocode 7 Part 2: Ground Investigation and testing (ISEN 1997 – 2:2007) and B.S. 5930:2015.

3.2. Trial Pits

The trial pits were excavated using a 8T tracked excavator at the locations shown in the exploratory hole location plan in Appendix 1. The locations were checked using a CAT scan to minimise the potential for encountering services during the excavation. The trial pits were sampled, logged and photographed by a Geotechnical Engineer/Engineering Geologist prior to backfilling with arisings. Notes were made of any services, inclusions, pit stability, groundwater encountered and the characteristics of the strata encountered and are presented on the trial pit logs which are provided in Appendix 2 of this Report.

3.1. Slit Trenching

The slit trenches were excavated using 20T tracked excavator at the locations shown in the exploratory hole location plan in Appendix 1. The locations were checked using a CAT scan to minimise the potential for encountering services during the excavation. The soil was slowly stripped using a spotter on the trench to alert the driver if any services were seen, to avoid damage to any underlying services. The slit trenches were sampled, logged and photographed by a Geotechnical Engineer/Engineering Geologist prior to backfilling with arisings. Notes were made of any services, inclusions, pit stability, groundwater encountered and the characteristics of the strata encountered and are presented on the slit trench records which are provided in Appendix 3 of this Report.

3.2. Soakaway Testing

The soakaway testing was carried out in selected trial pits at the locations shown in the exploratory hole location plan in Appendix 1. These pits were carefully excavated and filled with water to assess the infiltration characteristics of the proposed site. The pits were allowed to drain and the drop in water level was recorded over time as required by BRE Digest 365. The pits were logged prior to completing the soakaway test and were backfilled with arising's upon completion. The soakaway test results are provided in Appendix 4 of this Report.

3.3. Cable Percussion Boreholes

The Cable Percussion Boreholes were drilled using a Dando 2000 drilling rig with regular in-situ testing and sampling undertaken to facilitate the production of geotechnical logs and laboratory testing.
The standard method of boring in soil for site investigation is known as the Cable Percussion method. It consists of using a Shell in non cohesive soils and a clay cutter in cohesive soils, both operated on a wire cable. Very hard soils, boulders and other hard obstructions are broken up by chiselling and the fragments removed with the Shell. Where ground conditions made it necessary, the borehole was lined with 200mm diameter steel casing. While the use of the Cable Percussion method of boring gives the maximum data on soil conditions, some mixing of laminated soil is inevitable. For this reason, thin lenses of granular material may not be noticed. Disturbed samples were taken from the boring tools at suitable depths, so that there is a representative sample at the top of each change in stratum and thereafter at regular intervals

down the borehole until the next stratum was encountered. The disturbed samples were then sealed and sent to the laboratory where they were visually examined to confirm the description of the relevant strata. Standard Penetration Tests were carried out in the boreholes. The results of these tests, together with the depths at which the tests were taken are shown on the accompanying borehole records. The test consists of a thick wall sampler tube, 50mm external diameter, being driven into the soil by a monkey weighing 63.5kg and with a free drop of 760mm. For gravels and glacial till the driving shoe was replaced by a solid 60º cone. The Standard Penetration Test number referred to as the 'N' value is the number of blows required to drive the tube 300mm, after an initial penetration of 150mm. The number gives a guide to the consistency of the soil and can also be used to estimate the relative strength/density at the depth of the test and also to estimate the bearing capacity and compressibility of the soil. The cable percussion borehole logs are provided in Appendix 5 of this Report.

3.4. Rotary Boreholes

The rotary coring was carried out by a track mounted T44 Beretta rig at the locations shown on the location plan in Appendix 1. The rotary boreholes were completed from the ground surface or alternatively, where noted on the individual borehole log, from the base of the cable percussion borehole where a temporary liner was installed to facilitate follow-on rotary coring.

The T44 Beretta is equipped with rubber tracks which allow for short travel on pavement surfaces avoiding any damage to the surface. The T44 Beretta utilises a triple tube core barrel system operated using a wireline drilling process. The outer barrel is rotated by the drill rods and at its lower end, carries the coring bit. The inner barrel is mounted on a swivel so that it does not rotate during the process. The third barrel or liner is placed within the second one to retain the core intact and to preserve as much as possible the fabric of the drilling stratum. The core is cut by the coring bit and passes to the inner liner. The core is brought up to the surface within the inner barrel on a small diameter wire rope or line attached to the "overshoot" recovery tool which is then placed into a core box in order of recovery. A drilling fluid, typically air mist or water flush is passed from the surface through hollow drill rods to the drill bit and is used to cool the drill bit. Temporary casing is used in some situations to support unstable ground or to seal off fissures or voids. It should be noted that the rotary coring can only achieve limited recovery in overburden, particularly granular or weakly cemented strata due to the flushing medium washing away the cohesive fraction during coring. The recovery achieved, where required is noted on the borehole logs and core photographs are provided to allow assessment of the core recovered. The rotary borehole logs are provided in Appendix 5 of this Report.

3.5. Surveying

The exploratory hole locations have been recorded using a KQ GEO Technologies KQ-M8 System which records the coordinates and elevation of the locations to ITM or Irish National Grid as required by the project specification. The coordinates and elevations are provided on the exploratory hole logs in the appendices of this Report.

3.6. Groundwater Monitoring Installations

Groundwater and or Gas Monitoring Installation were installed upon the completion of the boreholes to enable sampling and the determination of the equilibrium groundwater level. The typical groundwater monitoring installation consists of a 50mm uPVC/HDPE slotted pipe with a pea gravel response zone and bentonite seal installed to the Engineers specification. Where required the standpipe is sealed with a gas tap and finished with a durable steel cover fixed in place with a concrete surround. The installation details are provided on the exploratory hole logs in the appendices of this Report.

3.7. Laboratory Testing

Samples were selected from the exploratory holes for a range of geotechnical and environmental testing to assist in the classification of soils and to provide information for the proposed design.
Environmental & Chemical testing as required by the specification, including the Rilta Suite pH and sulphate testing was carried out by Element Materials Technology Laboratory in the UK. The Rilta suite testing includes both Solid Waste and Leachate Waste Acceptance Criteria.
Geotechnical testing consisting of moisture content, Atterberg limits, Particle Size Distribution (PSD) and hydrometer tests is being carried out in NMTL's Geotechnical Laboratory in Carlow
Rock strength testing including Point Load (Is_{50}) and Unconfined Compressive Strength (UCS) testing is being carried out in CMTL's materials testing Geotechnical Laboratory in Portlaoise.
The results of the laboratory testing are included in Appendix 6 of this Report.

4.0 Ground Conditions

4.1. General

The ground conditions encountered during the investigation are summarised below with reference to insitu and laboratory test results. The full details of the strata encountered during the ground investigation are provided in the exploratory hole logs included in the appendices of this report.

The sequence of strata encountered were variable across the site and generally comprised;

- Surfacing
- Made Ground
- Possible Made Ground
- Granular Deposits
- Cohesive Deposits
- Weathered Bedrock
- Bedrock

SURFACING: Tarmac surfacing was present in all the exploratory holes typically to a depth of 0.20m BGL.

MADE GROUND: Made Ground deposits were encountered beneath the Surfacing and were present to a maximum depth of 8.20m BGL. These deposits were described generally as *brown sandy slightly gravelly CLAY with frequent cobbles and boulders and contained low fragments of concrete, red brick, glass and plastic.*

POSSIBLE MADE GROUND: Possible Made Ground deposits were encountered beneath the Made Ground and were present to a maximum depth of 6.40m BGL. These deposits were described generally as *brown sandy slightly gravelly CLAY with low amount of cobbles.*

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Made Ground to a maximum depth of 8.0m BGL and were described typically as *brown sandy gravelly CLAY with occasional cobbles and boulder overlying a stiff to very stiff dark grey/black sandy gravelly CLAY*. The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the glacial till matrix. The strength of the cohesive deposits were typically firm where encountered. These deposits had low cobble and boulder content, where noted on the exploratory hole logs.

GRANULAR DEPOSITS: Granular deposits were encountered within the cohesive deposits at the location of BH03 and were typically described as *gre/ brown clayey sandy sub rounded to sub angular fine to coarse GRAVEL with occasional cobbles and rare boulders.* The secondary sand/gravel and silt/clay constituents varied across the site and with depth while occasional or frequent cobble and boulder content also present where noted on the exploratory hole logs.
Based on the SPT N values the deposits are typically medium dense and become dense with depth. A significant groundwater strike was noted in the boreholes on encountering the granular deposits.

BEDROCK: The rotary core boreholes recovered *weak to strong grey/dark grey fine to medium grained laminated LIMESTONE interbedded with weak black fine grained laminated Mudstone.*
The depth to rock varies from 8.13m BGL in BH01 to a maximum of 13.54m BGL in BH03. The total core recovery is good, typically 100% with some of the uppermost runs dropping to 80 or 90%. The SCR and RQD both are relatively poor in the upper weathered zone, often recovered as non-intact, however both indices show an increase with depth in each of the boreholes.

4.2. Groundwater

Groundwater strikes are noted on the exploratory hole logs where they occurred and where possible drilling was suspended for twenty minutes to allow the subsequent rise in groundwater to be recorded. We would point out that these exploratory holes did not remain open for sufficiently long periods of time to establish the hydrogeological regime and groundwater levels would be expected to vary with the time of year, rainfall, nearby construction and other factors. For this reason, standpipes were installed in BH01 and BH03 to allow the equilibrium groundwater level to be determined. The groundwater monitoring is included in Appendix 7 of this Report.

4.3. Laboratory Testing

4.3.1. Geotechnical Laboratory Testing

The geotechnical testing carried out on soil samples recovered generally confirm the descriptions on the logs with the primary constituent of the cohesive deposits found to be a CLAY of low to intermediate plasticity. The Particle Size Distribution tests confirm that generally the cohesive deposits are well-graded with percentages of sands and gravels ranging between 17% and 60% generally with fines contents of 20 to 31%.

4.3.2. Chemical Laboratory Testing

The pH and sulphate testing carried out indicate that pH results are near neutral and that the water soluble sulphate results is low when compared to the guideline values from BRE Special Digest 1:2005. The samples tested classify the soil as a Design Sulphate Level DS-1.

4.3.3. Environmental Laboratory Testing

A number of samples were analysed for a suite of parameters which allows for the assessment of the sampled material in terms of total pollutant content for classification of materials as *hazardous* or *non-hazardous*. The suite also allows for the assessment of the sampled material in terms of suitability for placement at licenced landfills (inert, stable non-reactive, hazardous etc.). The parameter list for the suite includes analysis of the solid samples for arsenic, barium, cadmium, chromium, copper, cyanide, lead, nickel, mercury, zinc, speciated aliphatic and aromatic petroleum hydrocarbons, pH, sulphate, sulphide, moisture content, soil organic matter and an asbestos screen.

The suite also includes those parameters specified in the EU Council Decision establishing criteria for the acceptance of waste at Landfills (Council Decision 2003/33/EC), which for the solid samples are total organic carbon (TOC), speciated aliphatic and aromatic petroleum hydrocarbons, BTEX, phenol, polychlorinated biphenyls (PCB) and PAH.

As part of the suite a leachate is generated from the solid sample which is analysed for antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, chloride, fluoride, soluble sulphate, sulphide, phenols, dissolved organic carbon (DOC) and total dissolved solids (TDS).

While the laboratory report provides a comparison with the waste acceptance criteria limits it does not provide a waste classification of the material sampled nor does it comment on any potentially hazardous properties of the materials tested. The possibility for contamination, not revealed by the testing undertaken should be borne in mind particularly where Made Ground deposits are present or the previous site use or location indicate a risk of environmental variation. The waste classification report will be included under the cover of a separate report by Ground Investigations Ireland.

4.3.4. Rock Laboratory Testing

The rock testing carried out on samples recovered from the boreholes reported Unconfined Compressive Strength (UCS) values ranging between 25.6 and 88.9 MPa while the point load testing gave Is50 values ranging between 0.36 to 7.83 MPa. The Is_{50} results correlate to the UCS values using a factor of approximately 20, giving values of 3.4 MPa and 93.2 MPa. These results correlate to the strength descriptions ranging between of Medium Strong to Strong and confirming the variability of this stratum and the descriptions on the logs. The average of the UCS testing and associated correlated values from the point loading suggest the rock is typically strong.

The results from the completed laboratory testing are included in Appendix 6 of this report.

5.0 Recommendations & Conclusions

5.1. General

The recommendations given and opinions expressed in this report are based on the findings as detailed in the exploratory hole records. Where an opinion is expressed on the material between exploratory hole locations, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for conditions which have not been revealed by the exploratory holes. Limited information has been provided at the ground investigation stage and any designs based on the recommendations or conclusions should be completed in accordance with the current design codes, taking into account the variation and the specific details contained within the exploratory hole logs.

5.2. Foundations

Due to the presence of deep deposits of Made Ground beneath the footprint of the proposed structure//high loading anticipated, piled foundations may be more economically advantageous for the proposed building. The type, size and depth of the pile foundations should be confirmed by a specialist piling contractor based on the loading from the proposed building. The floor slab is recommended be suspended and also supported on the building piles.

The pH and sulphate testing completed on samples recovered from the exploratory holes indicates the pH results are near neutral and the sulphate results are low, when compared to the guideline values from BRE Special Digest 1:2005. No special precautions are required for concrete foundations to prevent sulphate attack. The samples tested were below the limits of DS1 in the BRE Special Digest 1:2005.

5.3. Excavations

Short term temporary excavations in the cohesive deposits will remain stable for a limited time only and will require to be appropriately battered or the sides supported if the excavation is below 1.25m BGL or is required to permit man entry.

Excavations in the Made Ground or soft Cohesive Deposits will require to be appropriately battered or the sides supported due to the low strength of these deposits.

Any waste material to be removed off site should be disposed of to a suitably licenced landfill.

The environmental testing completed during the ground investigation will be reported under the cover of a separate GII Waste Classification/Subsoil Assessment Report.

5.4. Soakaway Design

Infiltration rates of $f=5.974 \times 10^{-5}$ m/s were calculated for the soakaway location SA02. At the location of SA09 the water level dropped too slowly to allow calculation of ‘f’ the soil infiltration rate. These locations are therefore not recommended as suitable for soakaway design and construction.

The recommendations provided in this report should be verified in the design of the proposed buildings, using the full details of the loading conditions and taking into consideration the allowable tolerable settlements/movements that the building can accommodate. The founding strata should be inspected and verified by a suitably qualified engineer prior to construction of the building foundations.

APPENDIX 1 - Site Location Plan

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Client:

BM
BARRETT MAHONY

0 5 10 15 20 m

Project Title:
Former Gowan House Site

Drawing Title:
Exploratory Hole Location Plan

GII Project Reference:
12689-03-23

Drawn By: SK

Date: 12/06/2023

Trial Pits
Slit Trench
Boreholes

APPENDIX 2 – Trial Pit Records

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	SA02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.10m x 0.60m x 3.30m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30)	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill		
					0.40			
					(0.50)	MADE GROUND: Dark brown to black silty sandy gravelly Clay with cobbles and fragments of concrete and plastic.		
0.70-1.60	B1				0.90			
						MADE GROUND: Dark greyish brown silty sandy clayey Gravel with cobbles boulders and fragments of plastic, metal tie straps, tar and wood		
1.90	B2				(2.40)			
3.20	B3				3.30	Complete at 3.30m		

Plan

Remarks

No groundwater encountered.
Spalling sidewalls below 2.50m.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.SA02

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	SA09

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.60m x 1.90m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.50) 0.60	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill with some rootlets		
0.60-1.50	B1				(0.90) 1.50	MADE GROUND: Brown sandy slightly clayey Gravel with some rootlets and subangular to subrounded cobbles, concrete blocks, plastic and metal. Gravel is fine to coarse subangular to subrounded.		
1.70	B2				(0.30) 1.80	Firm to stiff light brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded.		
1.90	B3				(0.10) 1.90	Stiff grey sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded.		
						Complete at 1.90m		

Plan

Remarks

No groundwater encountered.
Some spalling on sidewalls.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP09

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.60m x 0.80m x 2.60m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30) 0.40	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill		
0.60-1.20	B1				(2.20)	MADE GROUND: Dark grey clayey sandy Gravel with cobbles and fragments of red brick and plastic. Gravel is fine to coarse subangular to subrounded.		
1.90	B2							
2.50	B3				2.60	Complete at 2.60m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Obstruction at 2.60m, possible rock or boulders.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP01

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.10m x 0.60m x 3.30m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30)	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill		
					0.40			
					(0.50)	MADE GROUND: Dark brown to black silty sandy gravelly Clay with cobbles and fragments of concrete and plastic.		
0.70-1.60	B1							
					0.90			
						MADE GROUND: Dark greyish brown silty sandy clayey Gravel with cobbles boulders and fragments of plastic, metal tie straps, tar and wood		
1.90	B2							
					(2.40)			
3.20	B3							
					3.30	Complete at 3.30m		

Plan

Remarks

No groundwater encountered.
Spalling sidewalls below 2.50m.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP02

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.60m x 0.80m x 2.70m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.70)	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill with fragmnets of metal rebar and plastic		
0.80-1.20	B1				0.80 (0.40) 1.20	MADE GROUND: Brown slightly sandy silty clayey Gravel with cobbles. Gravel is fine to coarse subangular to subrounded.		
1.50	B2				(0.50) 1.70	MADE GROUND: Brown mottled black gravelly Clay. Gravel is fine to coarse subangular to subrounded.		
2.40	B3				(1.00)	MADE GROUND: Brown slightly gravelly Clay with wood and plastic pipe fragments. Gravel is fine to coarse subangular to subrounded.		
2.70	B4				2.70	Complete at 2.70m		

Plan

Remarks

No groundwater encountered.
Slight spalling on sidewalls.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP03

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP04

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.00m x 0.70m x 3.40m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
						MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill		
					(0.60) 0.70			
						MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill with fragments of tar, red brick and large concrete block pillars with metal rebar and wire.		
1.10	B1				(0.80)			
1.50	B2				1.50	MADE GROUND: Light brown silty sandy gravelly Clay with subangular to subrounded cobbles and fragments of red brick, plastic and tar. Gravel is fine to coarse subangular to subrounded.		
1.90	B3				(0.40) 1.90			
						MADE GROUND: Yellowish brown mottled black slightly silty slightly sandy gravelly Clay with occasional subrounded cobbles and fragments of red brick, plastic and tar. Gravel is fine to coarse subangular to subrounded.		
3.20	B4				(1.50) 3.40			
						Complete at 3.40m		

Plan

Remarks

No groundwater encountered.
Some spalling on sidewalls.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP04

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP05

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 3.00m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 19/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30) 0.40	MADE GROUND: Grey to dark grey slightly clayey slightly sandy Gravel with occasional subangular cobbles and fragments of brick, plastic and concrete. Gravel is fine to coarse angular to subangular.		
0.50	B1					MADE GROUND: Light brown to greyish brown sandy slightly gravelly Clay with roots and many subangular to subrounded cobbles and fragments of brick, metal and glass.		
1.00	B2				(1.40)			
					1.80	Stiff grey brown to brown slightly sandy slightly gravelly CLAY with many subangular cobbles and boulders.		
2.00	B3				(1.20)			
3.00	B4				3.00	Complete at 3.00m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP05

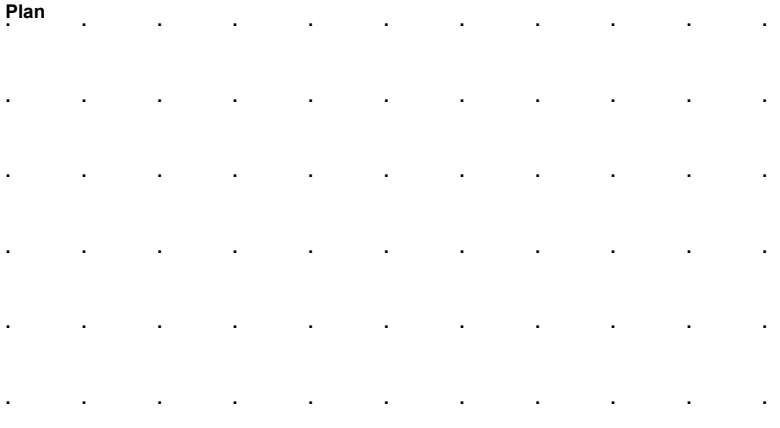
Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP06

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.40m x 0.80m x 0.90m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 19/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30) 0.40	MADE GROUND: Grey to dark grey slightly clayey slightly sandy fine to coarse angular to subangular Gravel with many subangular cobbles and some fragments of brick.		
0.50	B1				(0.50) 0.90	MADE GROUND: Grey to brown slightly clayey gravelly Sand with occasional subangular cobbles and some fragments of brick, plastic, metal and concrete. Concrete presenting along pit sidewalls at 0.65m.		
						Complete at 0.90m		

Plan



Remarks

No groundwater encountered.
Trial pit stable.
Trial pit terminated due to services at 0.90m.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP06

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP07

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.40m x 0.70m x 3.00m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 19/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30) 0.40	MADE GROUND: Grey to dark grey slightly clayey slightly sandy fine to coarse angular to subangular Gravel with occasional subangular cobbles and some fragments of brick, wood and plastic.		
0.50	B1				(0.45) 0.85	MADE GROUND: Grey to brown slightly sandy slightly gravelly CLAY with occasional subangular cobbles and fragments of brick and plastic.		
1.00	B2				(1.25) 2.10	Stiff brown slightly sandy slightly gravelly CLAY with many subangular to subrounded cobbles.		
2.00	B3				(0.90) 3.00	Stiff dark brown mottled brown slightly sandy slightly gravelly CLAY with many angular to subangular cobbles and boulders.		
3.00	B4					Complete at 3.00m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP07

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP08

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.4m x 0.70m x 2.80m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 19/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30) 0.40	MADE GROUND: Dark grey slightly clayey slightly sandy fine to coarse angular to subangular Gravel with many subangular cobbles.		
0.50	B1					MADE GROUND: Brown to grey stiff slight;y sandy gravelly CLAY with frequent subangular cobbles and fragments of brick, metal, concrete and plastic.		
1.00	B2				(1.30)			
					1.70			
2.00	B3					MADE GROUND: Grey mottled brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles and fragments of brick, glass and plastic. Large concrete boulder at 2.50m.		
					(1.10)			
					2.80			
2.80	B4					Complete at 2.80m		

Plan

Remarks

No groundwater encountered.
Trial pit collapsing from 1.70m.
Trial pit terminated due to sidewall collapse.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP08

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP09

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.60m x 1.90m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.50) 0.60	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill with some rootlets		
0.60-1.50	B1				(0.90) 1.50	MADE GROUND: Brown sandy slightly clayey Gravel with some rootlets and subangular to subrounded cobbles, concrete blocks, plastic and metal. Gravel is fine to coarse subangular to subrounded.		
1.70	B2				(0.30) 1.80	Firm to stiff light brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded.		
1.90	B3				(0.10) 1.90	Stiff grey sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded.		
						Complete at 1.90m		

Plan

Remarks

No groundwater encountered.
Some spalling on sidewalls.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP09

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP10

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.60m x 0.70m x 2.00m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 19/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.60)	MADE GROUND: Grey to black slightly clayey slightly sandy fine to coarse angular to subangular Gravel with occasional subangular cobbles, roots and fragments of brick, metal, cloth, ceramic and concrete.		
0.50	B1				0.70			
1.00	B2				(0.80)	MADE GROUND: Grey to brown slightly sandy slightly gravelly CLAY with occasional subangular cobbles and fragments of brick, cloth, ceramic and plastic. Black 100mm plastic pipe with gravel surround located at edge of trial pit at 0.80m.		
					1.50			
					(0.50)	Very stiff black slightly sandy slightly gravelly CLAY with occasional subrounded cobbles.		
2.00	B3				2.00			
						Complete at 2.00m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit terminated due to obstruction at 2.00m.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP10

Gowan Motors Site Naas Road Trial Pits

TP01

TP01

Gowan Motors Site Naas Road Trial Pits

TP01

TP02

Gowan Motors Site Naas Road Trial Pits

TP02

TP02

Gowan Motors Site Naas Road Trial Pits

TP03

TP03

Gowan Motors Site Naas Road Trial Pits

TP03

TP04

Gowan Motors Site Naas Road Trial Pits

TP04

TP04

Gowan Motors Site Naas Road Trial Pits

TP05

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Gowan Motors Site Naas Road Trial Pits

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TP06

Gowan Motors Site Naas Road Trial Pits

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Gowan Motors Site Naas Road Trial Pits

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Gowan Motors Site Naas Road Trial Pits

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TP08

Gowan Motors Site Naas Road Trial Pits

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TP08

Gowan Motors Site Naas Road Trial Pits

TP09

TP09

Gowan Motors Site Naas Road Trial Pits

TP09

TP10

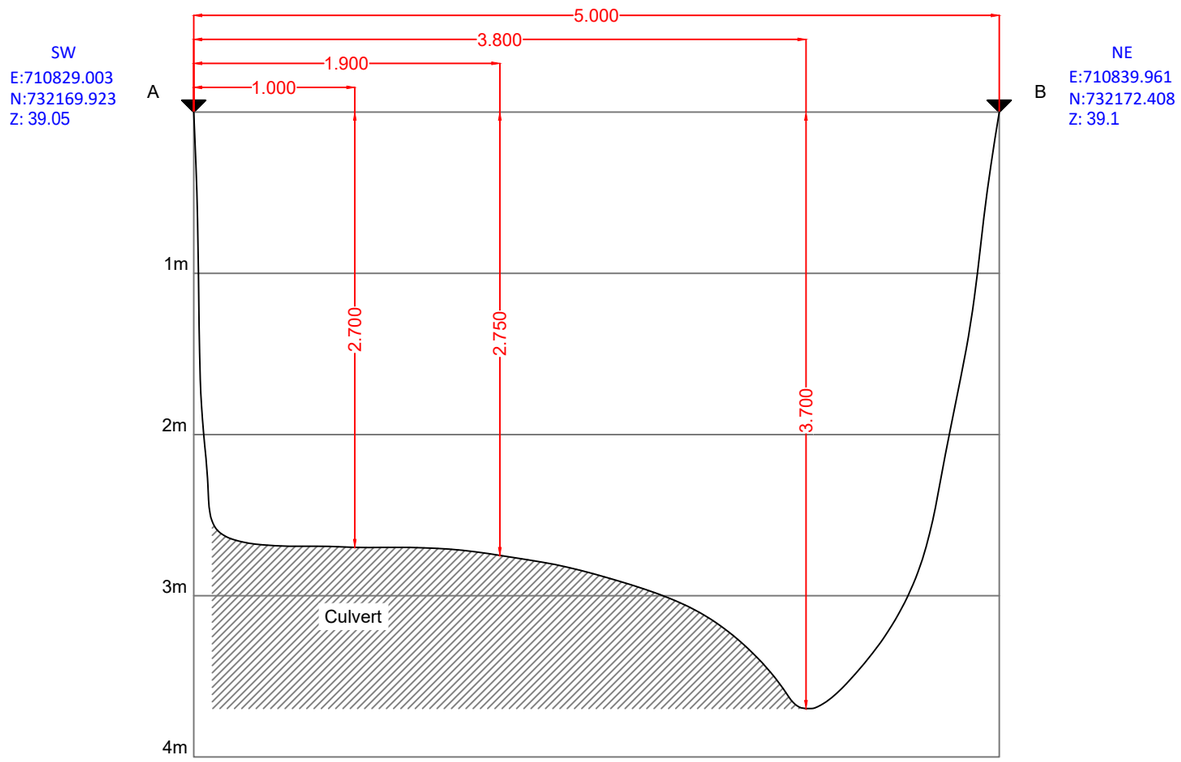
Gowan Motors Site Naas Road Trial Pits

TP10

TP10

APPENDIX 3 – Slit Trench Records

ST-01



Service No	ø (m)	Colour - Material	Utility	Angle to trench	Coordinates		Level
					East	North	
S1	3.800	Grey - Concrete	Culvert	90°			

Surface from/to (m)		Surface type
0.00	5.00	Tarmacadam

Sample depth (m)	Sample type

From (m)	To (m)	Description
0.00	0.10	Tarmacadam.
0.10	0.17	Grey fine to coarse angular to subangular Gravel FILL.
0.17	0.60	Dark grey fine to coarse angular to subangular Gravel FILL.
0.60	2.05	MADE GROUND: Brown gravelly sandy Clay with occasional cobbles, boulders, red brick, wood and plastic.
2.05	3.80	MADE GROUND: Grey very sandy very gravelly Clay with lenses of Gravel and occasional cobbles, boulders, red brick wood and plastic.

Groundwater	Y/N	Depth	Notes
	N		

GROUND INVESTIGATIONS IRELAND
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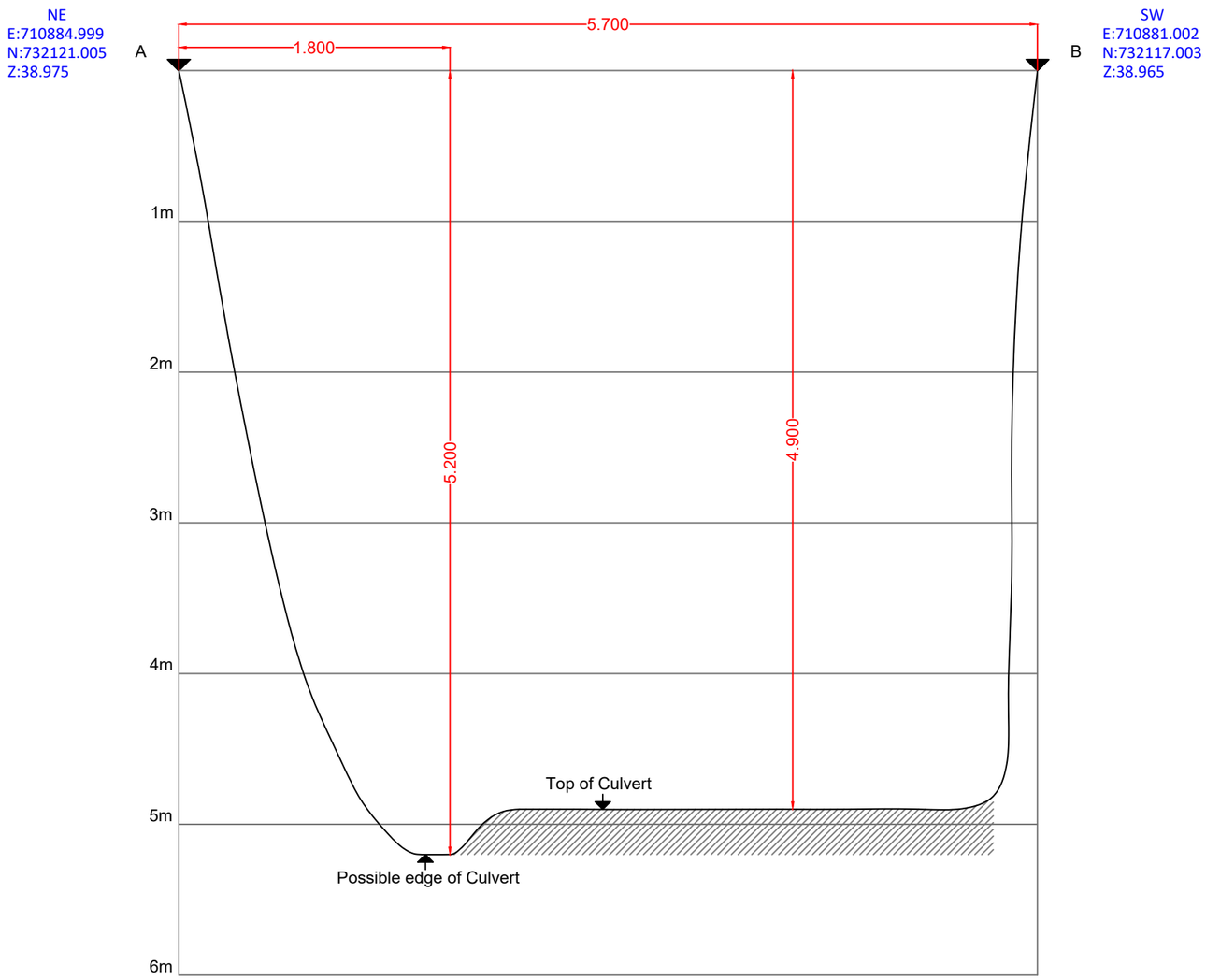
Email: info@gii.ie Web: www.gii.ie

PROJECT:	12689-03-23 - Gowan Motors Site Naas Road
DRAWING No.:	ST-01
DATE:	12/02/2023
CLIENT:	Barrett Mahony
SCALE:	NTS

Version:	Date:	Drawn By:	Checked By:
1	12/06/2023	J.S.	S.K.

ST-02



Service No	ø (m)	Colour - Material	Utility	Angle to trench	Coordinates		Level
					East	North	

Surface from/to (m)		Surface type
0.00	5.70	Tarmacadam

Sample depth (m)	Sample type

From (m)	To (m)	Description
0.00	0.10	Tarmacadam.
0.10	0.60	Grey to black slightly clayey slightly sandy fine to coarse angular to subangular Gravel with many angular to subangular cobbles.
0.60	1.80	Grey to brown very sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles and boulders. MADE GROUND: Brick, concrete, metal, broken cable, flagstones, wood.
1.80	2.30	Light brown slightly sandy gravelly CLAY with many subangular to subrounded cobbles. MADE GROUND: No evidence.
2.30	4.60	Grey to brown mottled orangish brown slightly sady slightly gravelly CLAY with many angular to subangular cobbles and boulders. MADE GROUND: Rebar.
4.60	4.90	Grey brown clayey slightly sandy gravelly fine to coarse angular to subangular Gravel with many angular to subangular boulders.

Groundwater	Y/N	Depth	Notes
	N		

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PROJECT:	12689-03-23 - Gowan Motors Site Naas Road
DRAWING No.:	ST-02
DATE:	04/05/2023
CLIENT:	Barrett Mahony
SCALE:	NTS

Version:	Date:	Drawn By:	Checked By:
1	20/06/2023	J.S.	M.K.

Gowan Motors Site Naas Road Slit Trench Photographs

ST01

ST01

Gowan Motors Site Naas Road Slit Trench Photographs

ST01

ST01

Gowan Motors Site Naas Road Slit Trench Photographs

ST01

Gowan Motors Site Naas Road Slit Trench Photographs

ST01

ST02

Gowan Motors Site Naas Road Slit Trench Photographs

ST02

ST02

Gowan Motors Site Naas Road Slit Trench Photographs

ST02

ST02

APPENDIX 4 - Soakaway Records

GROUND INVESTIGATIONS IRELAND
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D22 YD52

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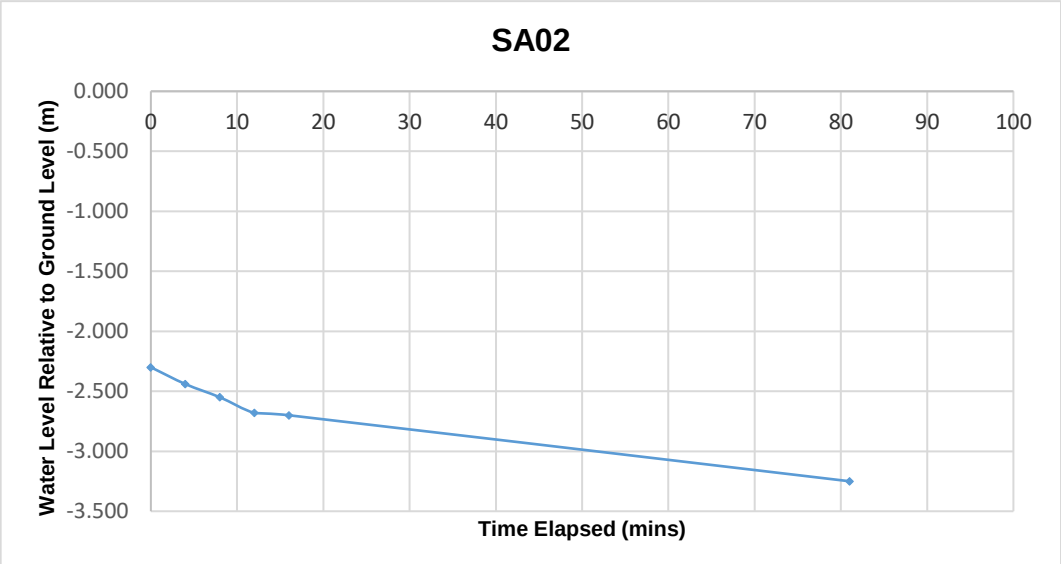
Web: www.gii.ie

SA02

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 3.10m x 0.60m x 3.30m (L x W x D)

Date	Time	Water level (m bgl)
24/04/2024	0	-2.300
24/04/2024	4	-2.440
24/04/2024	8	-2.550
24/04/2024	12	-2.680
24/04/2024	16	-2.700
24/04/2024	81	-3.250

Start depth	Depth of Pit		Diff	75% full	25%full
2.30	**3.300**		**1.000**	**2.55**	**3.05**
Length of pit (m)	Width of pit (m)			75-25Ht (m)	Vp75-25 (m3)
3.100	0.600			0.500	0.93
Tp75-25 (from graph) (s)		**2800**		50% Eff Depth	ap50 (m2)
				0.500	5.56
f =	**5.974E-05**	**m/s**			



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D22 YD52

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Web: www.gii.ie

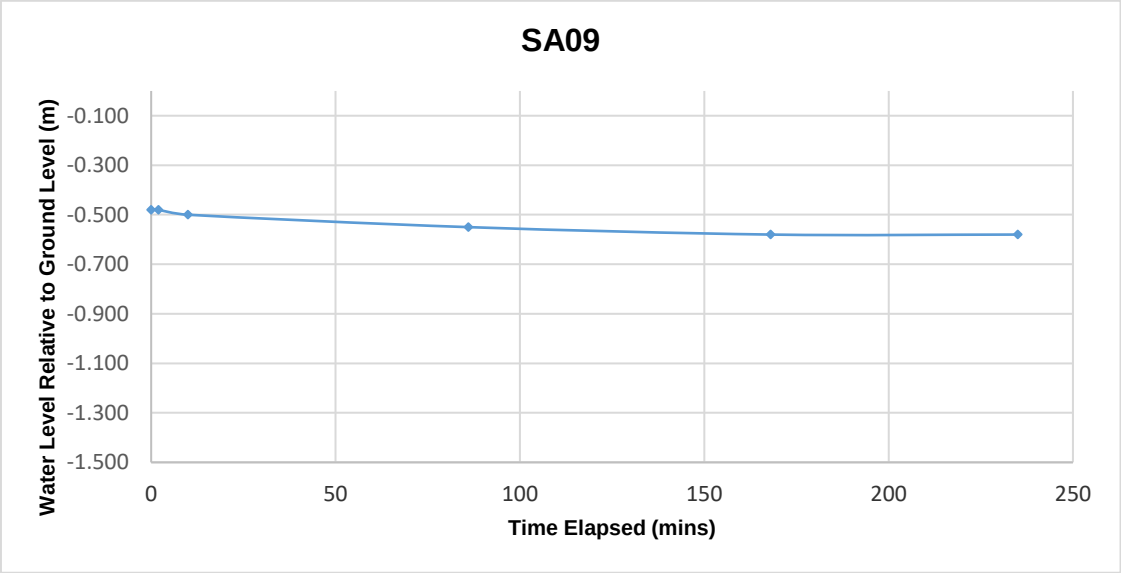
SA09

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 2.7m x 0.60m x 1.90m (L x W x D)

Date	Time	Water level (m bgl)
24/04/2024	0	-0.480
24/04/2024	2	-0.480
24/04/2024	10	-0.500
24/04/2024	86	-0.550
24/04/2024	168	-0.580
24/04/2024	235	-0.580

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.48	1.900	1.420	0.835	1.545



APPENDIX 5 – Borehole Records

Ground Investigations Ireland Ltd
www.gii.ie

Site Gowan Motors Site Naas Road			**Borehole Number** BH01
Machine : Dando 2000 and Beretta T44 **Method :** Cable Percussion with rotary core follow-on	**Casing Diameter** 200mm cased to 7.60m 100mm cased to 12.40m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 08/05/2023-09/05/2023	**Engineer** Barrett Mahony	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						(0.20) 0.20	TARMACADAM			
0.50	B1						MADE GROUND: Dark brownish grey slightly sandy gravelly Clay with low rootlets, red brick, concrete and metal fragments.			
1.00-1.45 1.00	SPT(C) N=8 B2			1,1/2,2,2,2						
2.00-2.45 2.00	SPT(C) N=9 B3			1,2/2,2,2,3						
3.00-3.45 3.00	SPT(C) N=9 B4			2,1/2,2,3,2		(5.80)				
4.00-4.45 4.00	SPT(C) N=8 B5			2,2/2,2,2,2						
5.00-5.45 5.00	SPT(C) N=10 B6			2,3/2,3,3,2						
6.00-6.45 6.00	SPT(C) N=13 B7			2,3/3,3,4,3		6.00	POSSIBLE MADE GROUND: Brown slightly gravelly Clay.			
7.00-7.45 7.00	SPT(C) N=50 B8			2,4/10,40		(1.30)				
	TCR / **SCR** / **RQD** / **FI**					7.30	Recovery consists of: Brownish grey to dark grey slightly gravelly CLAY. Gravels are medium to coarse subangular to subrounded. (Very stiff)			
7.60	45					(0.83)				
8.13	100 / 6 / 0					8.13	Very strong to strong dark grey thinly laminated fine grained argillaceous LIMESTONE, slightly weathered interbedded with moderately weak to weak dark grey thinly bedded fine grained calcareous MUDSTONE, highly weathered to destructed with occasional calcite veining and rare pyrite mineralisation.			
8.30	83 / 45 / 19 / 20						8.13m to 9.80m BGL: Sequence consists of closely spaced fractures, dipping 20-30 degrees, planar smooth with occasional clay smearing.			
9.80							9.70m to 9.80m BGL: Clay band			

Remarks
Cable percussive techniques carried out to 7.60m BGL with rotary core follow-on to 12.40m BGL.
Standpipe installed in borehole upon completion.
Slotted standpipe with gravel surround from 12.40m BGL to 1.0m BGL, plain standpipe with gravel surround from 1.0m BGL to GL complete with flush cover.
Chiselling from 7.30m to 7.60m for 1 hour.

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.BH01

Ground Investigations Ireland Ltd
www.gii.ie

Site Gowan Motors Site Naas Road			**Borehole Number** BH01
Machine : Dando 2000 and Beretta T44 **Flush :** Water **Core Dia :** 96 mm **Method :** Cable Percussion with rotary core follow-on	**Casing Diameter** 200mm cased to 7.60m 100mm cased to 12.40m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 08/05/2023-09/05/2023	**Engineer** Barrett Mahony	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	100	78	39	11			(4.27)	9.80m to 11.0m BGL: Sequence consists of medium to closley spaced fractures, dipping 0-10 degrees, planar smooth with occasional clay smearing.			
11.00				NI							
11.30 11.35	100	51	63	7				11.0m to 11.35m BGL: Non-intact with clay bands 11.67m to 11.74m BGL: Clay band 11.94m BGL: Pyrite mineralisation 11.0m to 12.40m BGL: Sequence contains 2 fracture sets: F1: Medium to closley spaced fractures, dipping 0-10 degrees, planar smooth with occasional clay smearing. F2: Medium to closely spaced fractures, dipping 60-70 degrees, planar smooth with occasional clay smearing.			
12.40							12.40	Complete at 12.40m			

Remarks

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.BH01

Ground Investigations Ireland Ltd
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Site Gowan Motors Site Naas Road			**Borehole Number** BH02
Machine : Dando 2000 **Method :** Cable Cable Percussion	**Casing Diameter** 200mm cased to 6.40m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 09/05/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.20) 0.20	TARMACADAM		
0.50	B1					(0.60)	MADE GROUND: Dark grey clayey slightly sandy subangular to angular fine to coarse Gravel.		
1.00-1.45 1.00	SPT(C) N=7 B2			1,1/1,2,2,2		0.80	MADE GROUND: Dark grey to greyish brown sandy gravelly Clay with low plastic concrete and red brick fragments. Gravel is subrounded to angular fine to coarse.		
2.00-2.45 2.00	SPT(C) N=8 B3			1,2/2,2,2,2		(2.20)			
3.00-3.45 3.00	SPT(C) N=8 B4			1,1/1,2,3,2		3.00	MADE GROUND: Brown sandy gravelly Clay with low subangular cobbles, plastic and red brick fragments. Gravel is rounded to angular fine to coarse.		
4.00-4.45 4.00	SPT(C) N=10 B5			2,2/2,3,3,2		(2.80)			▼1
5.00-5.45 5.00	SPT(C) N=8 B6			2,3/2,2,2,2 Water strike(1) at 5.20m, rose to 4.70m in 20 mins.					▽1
6.00-6.45 6.00	SPT(C) N=50 B7			14,3/9,10,31		5.80 (0.60) 6.40	POSSIBLE MADE GROUND: Greyish brown slightly sandy gravelly Clay with low subrounded cobbles. Gravel is rounded to angular fine to coarse. Complete at 6.40m		

Remarks
Cable percussive techniques carried out to 6.40m BGL.
Groundwater encountered at 5.20m BGL.
BH02 carried out adjacent to RC02.
Chiselling from 6.40m to 6.70m for 1 hour.

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.BH01

Ground Investigations Ireland Ltd
www.gii.ie

Site Gowan Motors Site Naas Road			**Borehole Number** RC02
Machine : Beretta T44 **Flush :** Water **Core Dia :** 96 mm **Method :** Rotary Cored	**Casing Diameter** 100mm cased to 14.90m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 08/05/2023	**Engineer** Barrett Mahony	**Sheet** 1/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00	20						(2.30)	Drillers notes: Tarmac, gravelly Fill and Concrete. Recovery consists of: MADE GROUND: Dark grey slightly sandy very gravelly Clay with low cobbles, tarmac and concrete. Gravel is subangular to angular fine to coarse. (RC02 carried out adjacent to BH02, see BH02 for further description)			
2.30	12						2.30	Drillers notes: Gravelly Fill. Recovery consists of: MADE GROUND: Brown slightly sandy gravelly Clay with concrete and styrofoam. Gravel is subangular to angular fine to coarse. (RC02 carried out adjacent to BH02, see BH02 for further description)			
3.80	5						(4.10)				
5.30	10										
6.80	8						6.40	Drillers notes: Gravelly Fill. Recovery consists of: MADE GROUND: Brown slightly sandy gravelly Clay with concrete and styrofoam. Gravel is subangular to angular fine to coarse.			
8.30	35						(1.90)	Drillers notes: Brownish grey boulder Clay. Recovery consists of: Greyish brown slightly sandy gravelly CLAY with medium cobbles. Gravel is subangular to subrounded fine to coarse.			
9.80 9.80-10.25					18,17/18,22,10 SPT(C) N=50		8.30 (1.50) 9.80	Drillers notes: Black boulder Clay. Recovery			

Remarks
Rotary coring techniques carried out to 14.90m BGL.
RC02 carried out adjacent to BH02.
Standpipe installed in borehole upon completion.
Slotted standpipe with gravel surround from 14.90m BGL to 1.0m BGL, plain standpipe with gravel surround from 1.0m BGL to GL complete with flush cover.

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.RC02

Ground Investigations Ireland Ltd
www.gii.ie

Site Gowan Motors Site Naas Road			**Borehole Number** RC02
Machine : Beretta T44 **Flush :** Water **Core Dia :** 96 mm **Method :** Rotary Cored	**Casing Diameter** 100mm cased to 14.90m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 08/05/2023	**Engineer** Barrett Mahony	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	57						(1.85)	consists of: Dark grey slightly sandy gravelly CLAY with medium cobbles. Gravel is subangular to subrounded fine to coarse. (Very stiff)			
11.30 11.30-11.75	74				19,21/50 SPT(C) N=50						
11.65	100	65	37	20			11.65	Strong dark grey thinly laminated fine grained argillaceous LIMESTONE, slightly to partially weathered interbedded with moderately weak to weak dark grey thinly bedded fine grained calcareous MUDSTONE, moderately weathered to destructed with occasional calcite veining. 11.78m to 11.80m BGL: Clay band 11.65m to 12.80m BGL: Sequence consists of 2 fracture sets: F1: Very close to closely spaced fractures, dipping 05-15 degrees, planar smooth with occasional clay smearing. F2: Medium to closely spaced fractures, dipping 70-80 degrees, planar smooth with occasional clay smearing. 12.62m to 12.66m BGL: Clay band 12.80m to 13.08m BGL: Clay band			
12.80				NI							
13.20	93	54	36	9			(3.25)	13.20m to 14.90m BGL: Sequence consists of 2 fracture sets: F1: Very close to closely spaced fractures, dipping 05-15 degrees, planar smooth with occasional clay smearing. F2: Medium to closely spaced fractures, dipping 70-80 degrees, planar smooth with occasional clay smearing. 14.12m to 14.44m BGL: Clay band			
14.30	100	65	17	13							
14.90							14.90	Complete at 14.90m			

Remarks

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.RC02

Ground Investigations Ireland Ltd
www.gii.ie

Site Gowan Motors Site Naas Road			**Borehole Number** BH03
Machine : Dando 2000 and Beretta T44 **Method :** Cable Percussion with rotary core follow-on	**Casing Diameter** 200mm cased to 10.00m 100mm cased to 16.60m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 08/05/2023	**Engineer** Barrett Mahony	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.20) 0.20	TARMACADAM		
0.50	B1						MADE GROUND: Dark grey slightly clayey slightly sandy angular to subangular fine to coarse Gravel.		
1.00-1.45 1.00	SPT(C) N=8 B2			1,2/2,2,2,2		(2.10)			▼1
2.00-2.45 2.00	SPT(C) N=9 B3			2,2/2,3,2,2		2.30	MADE GROUND: Brown sandy very gravelly CLAY with low red brick fragments.		
				Water strike(1) at 2.70m, rose to 1.50m in 20 mins.		(0.70)			▽1
3.00 3.00-3.45	B4 SPT(C) N=11			2,3/4,2,2,3		3.00	POSSIBLE MADE GROUND: Brown sandy gravelly CLAY with low cobbles. Gravels are subangular to rounded fine to coarse.		
4.00-4.45 4.00	SPT(C) N=10 B5			2,3/3,2,2,3		(3.00)			
5.00-5.45 5.00	SPT(C) N=12 B6			2,3/3,3,3,3					
6.00-6.45 6.00	SPT(C) N=10 B7			2,2/2,2,3,3		6.00	Firm dark grey slightly sandy slightly gravelly CLAY/SILT. Gravels are subangular to rounded fine to coarse.		
7.00-7.45 7.00	SPT(C) N=11 B8			2,3/3,3,3,2		(2.00)			
8.00-8.45 8.00	SPT(C) N=11 B9			2,2/3,3,2,3		8.00	Medium dense dark grey clayey slightly sandy subangular to rounded fine to coarse GRAVEL with high subrounded to subangular cobbles.		
						(1.00)			
9.00-9.45 9.00	SPT(C) N=50 B10			8,11/13,17,19,1		9.00	Dense dark grey clayey slightly sandy subangular to rounded fine to coarse GRAVEL with high subrounded to subangular cobbles.		
						(1.00)			
10.00									

Remarks
Cable percussive techniques carried out to 7.60m BGL with rotary core follow-on to 16.6m BGL.
Groundwater encountered at 2.70m BGL.

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.BH01

Ground Investigations Ireland Ltd
www.gii.ie

Site Gowan Motors Site Naas Road			**Borehole Number** BH03
Machine : Dando 2000 and Beretta T44 **Flush :** Water **Core Dia :** 96 mm **Method :** Cable Percussion with rotary core follow-on	**Casing Diameter** 200mm cased to 10.00m 100mm cased to 16.60m **Location**	**Ground Level (mOD)** **Dates** 08/05/2023	**Client** Hollybrook Homes Ltd **Engineer** Barrett Mahony	**Job Number** 12689-03-23 **Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.00					B11		10.00			
10.00-10.45	28				SPT(C) N=50 9,14/15,19,16			Driller Notes Black Boulder Clay. Recovery consists of: Dark grey clayey slightly sandy subrounded to angular fine to coarse Gravel with low cobbles (Very Stiff).		
11.30-11.45					10,19/50 SPT(C) 50/0		(2.80)			
11.30	56									
12.80-12.88					50/50 SPT(C) 50*/75 50/0		12.80			
12.80	49						(0.74)	Recovery consists of: Dark grey slightly sandy gravelly CLAY. Gravels are subangular to angular fine to coarse. (Very stiff)		
13.54	100	51	18	15			13.54	Strong dark grey thinly laminated fine grained argillaceous LIMESTONE, moderately weathered interbedded with moderately weak dark grey thinly bedded fine grained calcareous MUDSTONE, highly to distinctly weathered with occasional calcite veining. 13.54m to 14.59m BGL: Sequence consists of closely spaced fractures, dipping 20-40 degrees, planar smooth.		
14.30										
14.59				NI			(2.29)	14.49m to 14.80m BGL: Non-intact		
14.80	100	37	27	13				14.94m to 14.97m BGL: Clay band 14.80m to 15.80m BGL: Sequence consists of 2 fracture sets: F1: Medium to closely spaced fractures, dipping 05-15 degrees, planar smooth with occasional clay smearing. F2: Medium spaced fractures, dipping 80-90 degrees, planar to undulating smooth with occasional clay smearing.		
15.80	73	36	8	20			15.83 (0.77)	Weak dark grey thinly bedded fine grained calcareous MUDSTONE, highly weathered to destructed with occasional calcite veining and rare pyrite mineralisation. 15.80m to 16.60m BGL: Sequence consists of very close to closely spaced fractures, dipping 0-10 degrees, , planar smooth with occasional clay smearing. 16.15m BGL: Pyrite mineralisation 16.20m to 16.24m BGL: Clay band		
16.60							16.60	Complete at 16.60m		

Remarks

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.BH01

Gowan Motors Site Naas Road Rotary Core Photos

BH01

BH01

Gowan Motors Site Naas Road Rotary Core Photos

RC02

RC02

Gowan Motors Site Naas Road Rotary Core Photos

BH03

BH03

APPENDIX 6 – Laboratory Test Records

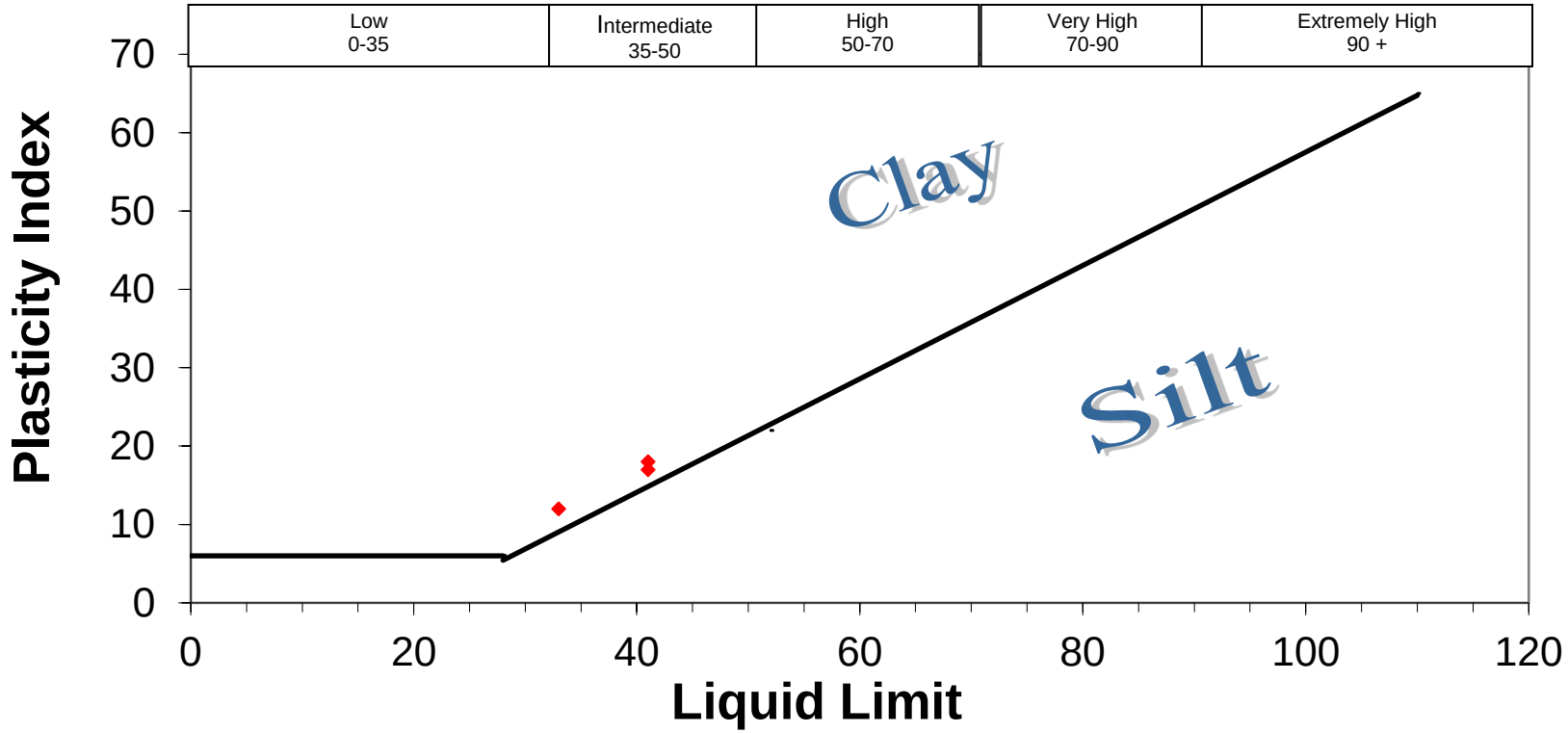
National Materials Testing Laboratory Ltd.

SUMMARY OF TEST RESULTS

				Particle			Index Properties		Bulk	Cell	Undrained Triaxial Tests		Lab	
BH/TP	Depth	sample	Moisture	Density	<425um	LL	PL	PI	Density	Presssure	Compressive	Strain at	Vane	Remarks
No	m	No.	%	Mg/m3	%	%	%	%	Mg/m3	kPa	Stress kPa	Failure %	kPa	
BH03	6.00	B	15.5			41	23	18						
BH03	7.00	B	27.8			41	24	17						
BH03	8.00	B	27.5			33	21	12						

NMTL	Notes :	Job ref No.	NMTL 3634	GII Project ID:	12689-03-23
	1. All BS tests carried out using preferred (definitive) method unless otherwise stated.	Location	Gowan MotorsSite, Naas Road		

NMTL LTD	**Contract:** Gowan MotorsSite, Naas Road
Unit 18c, Tullow Industrial Estate	**Client:** Ground Investigations Ireland Ltd
Tullow	**Engineer:** Stehphen Kealy
County Carlow	**GII Project ID** 12689-03-23
Tel: 00353 59 9180822	**Date:** 07/07/2023
Mob: 00353 872575508	**Tested By:** Js **Checked:** Bc
billa@nmtl.ie	**Job ref No.** NMTL 3634

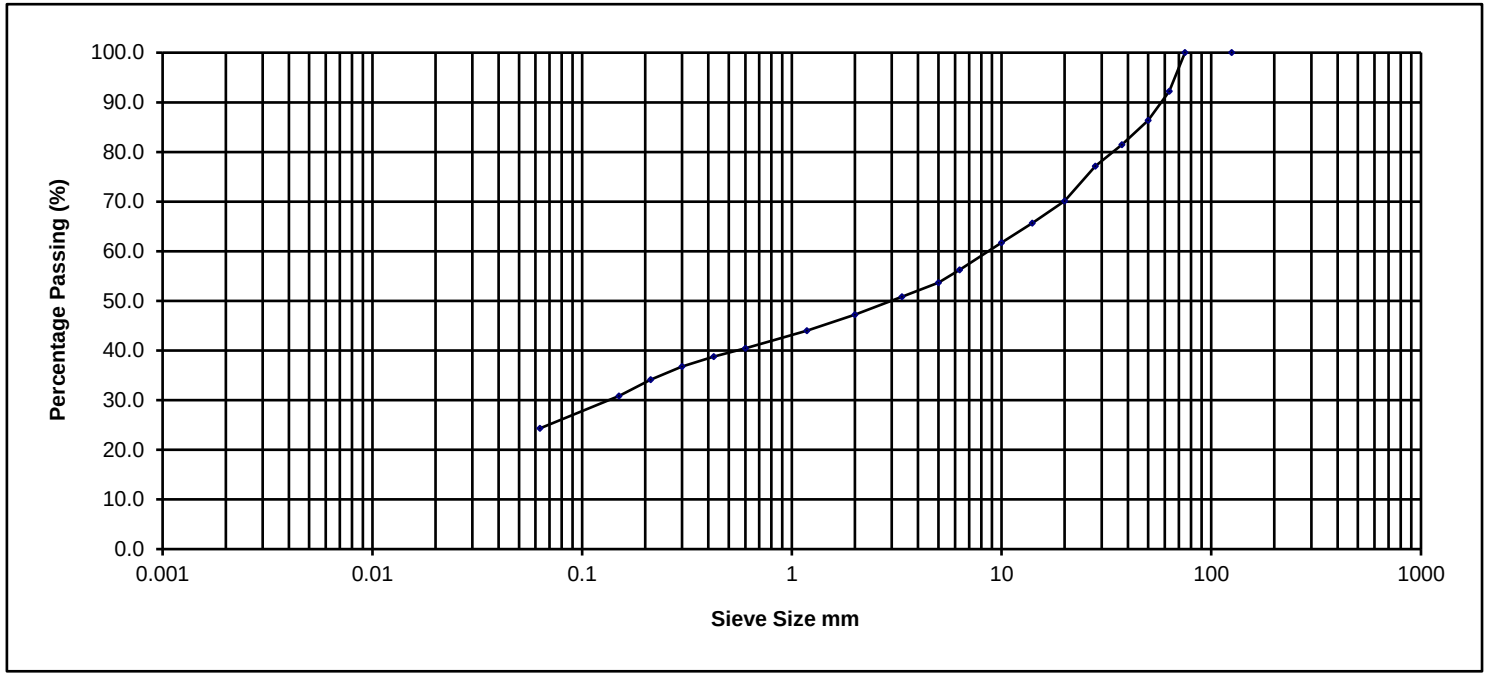


NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	92.2
50.000	86.4
37.500	81.5
28.000	77.1
20.000	70.1
14.000	65.7
10.000	61.7
6.300	56.3
5.000	53.7
3.350	50.8
2.000	47.2
1.180	44.0
0.600	40.5
0.425	38.8
0.300	36.8
0.212	34.1
0.150	30.8
0.063	24.3



Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		24.3			22.9			45.0		7.8	0.0

Sample Description	Dark brown slightly sandy gravelly silty CLAY.			Project No.	NMTL 3634
				BH/TP No.	BH03
Project	Gowan Motor Site, Naas Raod		GII PROJECT ID:12689-03-23	Sample No.	B
Operator Js	Checked Nc	Approved Bc	Date sample tested 04/07/2023	Depth	6.00m

NMTL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	87.9
28.000	83.9
20.000	81.6
14.000	80.2
10.000	77.3
6.300	72.7
5.000	70.8
3.350	68.3
2.000	64.5
1.180	60.0
0.600	51.8
0.425	46.3
0.300	40.4
0.212	35.5
0.150	31.6
0.063	24.0

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		24.0			40.5			35.5		0.0	0.0

Sample Description	Dark brown/grey gravelly sandy silty CLAY.			Project No.	NMTL 3634
				BH/TP No.	BH03
Project	Gowan Motor Site, Naas Raod		GII PROJECT ID:12689-03-23	Sample No.	B
Operator Js	Checked Nc	Approved Bc	Date sample tested 04/07/2023	Depth	7.00m

NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	97.1
28.000	93.0
20.000	92.2
14.000	89.6
10.000	87.5
6.300	83.6
5.000	82.2
3.350	79.4
2.000	75.0
1.180	69.5
0.600	58.6
0.425	51.4
0.300	44.1
0.212	38.2
0.150	33.5
0.063	25.0
0.053	23.2
0.038	20.9
0.020	16.7
0.010	13.8
0.007	11.7
0.005	9.1
0.004	7.3
0.002	4.9

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
4.9		20.1			50.0			25.0		0.0	0.0

Sample Description	Dark grey/brown slightly gravelly sandy silty CLAY.			Project No.	NMTL 3634
				BH/TP No.	BH03
Project	Gowan Motor Site, Naas Raod		GII PROJECT ID:12689-03-23	Sample No.	B
Operator Js	Checked Nc	Approved Bc	Date sample tested 04/07/2023	Depth	8.00m

NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	94.6
37.500	88.2
28.000	79.3
20.000	78.2
14.000	72.0
10.000	66.6
6.300	58.3
5.000	55.7
3.350	53.0
2.000	49.1
1.180	45.6
0.600	41.6
0.425	39.6
0.300	37.8
0.212	36.2
0.150	34.7
0.063	31.8

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		31.8			17.3			50.9		0.0	0.0

Sample Description	Dark grey slightly sandy gravelly silty CLAY.			Project No.	NMTL 3634
				BH/TP No.	BH03
Project	Gowan Motor Site, Naas Raod		GII PROJECT ID:12689-03-23	Sample No.	B
Operator Js	Checked Nc	Approved Bc	Date sample tested 04/07/2023	Depth	9.00m

NM TL Ltd

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Hazelhatch Road
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Ireland
D22 K5P8

Attention :	Stephen Kealy
Date :	11th July, 2023
Your reference :	12689-03-23
Our reference :	Test Report 23/6708 Batch 1
Location :	Gowan Motors Site Naas Road
Date samples received :	27th April, 2023
Status :	Final Report
Issue :	2

Nineteen samples were received for analysis on 27th April, 2023 of which nineteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05			
Depth	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023			
Antimony	<1	<1	1	<1	1	3	<1	4	2	2	<1	mg/kg	TM30/PM15
Arsenic #	5.6	6.6	9.7	5.1	8.2	16.5	7.7	20.8	10.6	15.6	<0.5	mg/kg	TM30/PM15
Barium #	88	117	86	59	55	110	84	112	119	126	<1	mg/kg	TM30/PM15
Cadmium #	1.2	0.9	0.4	0.6	1.5	2.8	0.9	2.1	1.2	2.0	<0.1	mg/kg	TM30/PM15
Chromium #	21.7	26.7	10.2	22.4	15.1	39.6	33.0	50.4	42.3	33.9	<0.5	mg/kg	TM30/PM15
Copper #	18	21	23	16	32	44	27	47	30	37	<1	mg/kg	TM30/PM15
Lead #	19	22	24	16	19	48	20	37	69	35	<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #	1.6	2.2	1.8	2.6	2.3	4.2	2.2	5.0	3.1	2.6	<0.1	mg/kg	TM30/PM15
Nickel #	24.1	29.8	37.3	23.6	43.0	68.2	29.0	68.2	30.3	61.9	<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	1	1	1	2	<1	3	1	1	<1	mg/kg	TM30/PM15
Zinc #	138	125	62	65	118	185	92	157	121	134	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	0.19	0.36	0.09	<0.04	0.04	<0.04	0.17	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.05	0.07	<0.03	<0.03	<0.03	<0.03	0.07	<0.03	0.07	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.23	0.36	0.14	0.04	0.07	0.06	0.28	<0.03	1.25	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	0.48	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.15	0.20	0.09	<0.03	0.04	0.13	0.30	0.05	3.94	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	0.14	0.20	0.09	<0.03	0.04	0.11	0.30	0.05	3.09	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	0.09	0.08	<0.06	1.83	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	0.09	0.08	<0.02	<0.02	<0.02	0.08	0.08	0.04	1.69	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	0.10	0.13	<0.07	2.57	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	0.08	<0.04	1.43	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.09	<0.04	0.89	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.23	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.83	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.08	<0.04	0.15	<0.04	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	0.25	<0.22	<0.22	<0.22	0.29	0.60	<0.22	9.66	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total	0.85	1.32	<0.64	<0.64	<0.64	<0.64	1.72	<0.64	18.45	<0.64	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.09	<0.05	1.85	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.04	<0.02	0.72	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	88	88	87	85	83	80	87	74	85	83	<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	826	971	50	155	<30	<30	216	<30	227	<30	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05			
Depth	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023			
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	6.2	6.5	1.2	2.3	<0.2	<0.2	0.8	<0.2	1.9	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	86	98	8	10	<4	<4	9	<4	10	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	278	289	25	23	<7	<7	45	<7	41	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	409	500	16	100	<7	<7	145	<7	152	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	47	77	<7	20	<7	<7	16	<7	22	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_CU_1D_AL)	826	971	50	155	<26	<26	216	<26	227	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_1D_AL)	432	457	32	51	<10	<10	71	<10	109	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_1D_AL)	243	328	<10	76	<10	<10	91	<10	124	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	2.2	0.7	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	31	32	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	100	109	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	306	484	<7	154	<7	<7	82	<7	173	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	66	120	<7	62	<7	<7	28	<7	39	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_CU_1D_AR)	505	746	<26	216	<26	<26	110	<26	212	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	1331	1717	<52	371	<52	<52	326	<52	439	<52	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_1D_AR)	177	187	<10	<10	<10	<10	<10	<10	15	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_1D_AR)	217	359	<10	132	<10	<10	64	<10	121	<10	<10	mg/kg	TM5/PM8/PM16
MTBE #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Benzene #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Toluene #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Ethylbenzene #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
m/p-Xylene #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
o-Xylene #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
PCB 28 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 101 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 180 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
Total 7 PCBs #	<175 AA	<175 AA	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05			
Depth	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023			
Natural Moisture Content	17.4	16.9	15.7	9.0	10.1	25.7	12.4	26.9	13.5	20.1	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	14.8	14.4	13.6	8.2	9.2	20.4	11.1	21.2	11.9	16.8	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	NDP	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.5239	-	-	-	-	-	-	-	-	0.0357	<0.0015	g/l	TM38/PM20
Chromium III	21.7	NDP	10.2	22.4	15.1	39.6	33.0	50.4	42.3	33.9	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.68	0.41	0.58	0.42	0.60	1.30	0.59	0.87	1.08	0.55	<0.02	%	TM21/PM24
Acid Reserve	NDP	NDP	-	-	-	-	-	-	-	-	<0.000	gNaOH/100g	TM160/PM110
Alkali Reserve	0.007	0.024	-	-	-	-	-	-	-	-	<0.000	gNaOH/100g	TM160/PM110
pH #	11.54	11.50	8.14	8.10	8.57	7.82	10.18	7.85	8.30	8.40	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1064	0.1109	0.1049	0.1064	0.099	0.1171	0.1022	0.1163	0.1053	0.1061		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73-76		LOD/LOR	Units	Method No.
Sample ID	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10				
Depth	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00				
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T				
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023				
Antimony	7	2	2	3	12	2	1	2	2		<1	mg/kg	TM30/PM15
Arsenic #	8.7	10.8	9.7	18.0	15.5	10.8	7.8	13.8	16.4		<0.5	mg/kg	TM30/PM15
Barium #	84	104	98	142	144	83	136	143	124		<1	mg/kg	TM30/PM15
Cadmium #	1.2	1.7	2.0	2.6	1.6	1.6	1.2	0.8	3.8		<0.1	mg/kg	TM30/PM15
Chromium #	40.4	31.5	40.3	53.1	60.7	42.7	25.7	55.4	45.9		<0.5	mg/kg	TM30/PM15
Copper #	28	31	30	48	63	36	26	40	46		<1	mg/kg	TM30/PM15
Lead #	71	43	32	55	202	76	22	196	84		<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	0.1	0.2	0.2	0.2	<0.1	<0.1	<0.1		<0.1	mg/kg	TM30/PM15
Molybdenum #	3.1	3.9	3.6	5.6	4.4	1.9	2.5	3.4	4.7		<0.1	mg/kg	TM30/PM15
Nickel #	25.3	37.2	37.1	67.9	41.2	33.3	38.5	32.8	57.4		<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	1	2	1	<1	1	1	1		<1	mg/kg	TM30/PM15
Zinc #	96	113	111	148	147	123	107	188	369		<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	0.11	0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	0.17	<0.03	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	0.08	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.24	0.07	0.09	0.24	0.19	0.54	0.09	0.14	0.08		<0.03	mg/kg	TM4/PM8
Anthracene #	0.08	<0.04	<0.04	0.06	0.05	0.17	<0.04	0.05	<0.04		<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.34	0.12	0.14	0.42	0.31	0.90	0.14	0.33	0.12		<0.03	mg/kg	TM4/PM8
Pyrene #	0.33	0.11	0.12	0.39	0.28	0.88	0.13	0.30	0.12		<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.18	0.09	0.12	0.26	0.20	0.65	0.10	0.28	0.09		<0.06	mg/kg	TM4/PM8
Chrysene #	0.17	0.08	0.08	0.26	0.21	0.62	0.10	0.24	0.08		<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.29	0.12	0.13	0.45	0.41	1.50	0.18	0.46	0.15		<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.17	0.07	0.08	0.27	0.25	1.00	0.10	0.26	0.09		<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.12	<0.04	0.06	0.19	0.21	0.71	0.08	0.20	0.06		<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	0.06	0.12	<0.04	0.05	<0.04		<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.12	0.05	0.06	0.19	0.23	0.71	0.08	0.19	0.07		<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	0.15	<0.04	0.05	<0.04		<0.04	mg/kg	TM4/PM8
PAH 6 Total #	1.04	0.36	0.47	1.52	1.41	4.82	0.58	1.44	0.49		<0.22	mg/kg	TM4/PM8
PAH 17 Total	2.04	0.71	0.88	2.73	2.40	8.31	1.04	2.55	0.86		<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.21	0.09	0.09	0.32	0.30	1.08	0.13	0.33	0.11		<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.08	0.03	0.04	0.13	0.11	0.42	0.05	0.13	0.04		<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	88	84	85	85	88	88	114	88	90		<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	165	87	47	<30	<30	111	215	59	45		<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73-76		LOD/LOR	Units	Method No.
Sample ID	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10				
Depth	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00				
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T				
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023				
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	6	5	<4	<4	<4	<4	<4	<4	<4		<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	27	29	10	<7	<7	16	25	<7	<7		<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	120	53	37	<7	<7	86	158	47	45		<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	12	<7	<7	<7	<7	9	32	12	<7		<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_CU_1D_AL)	165	87	47	<26	<26	111	215	59	45		<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_1D_AL)	88	33	<10	<10	<10	42	44	<10	<10		<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_1D_AL)	105	27	47	<10	<10	75	132	37	34		<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	<4	<4	<4	<4	<4	<4	<4	<4	<4		<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	<7	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	73	75	39	<7	83	90	76	114	<7		<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	25	38	9	<7	31	29	18	39	<7		<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_CU_1D_AR)	98	113	48	<26	114	119	94	153	<26		<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	263	200	95	<52	114	230	309	212	<52		<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_1D_AR)	<10	<10	<10	<10	<10	16	<10	18	<10		<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_1D_AR)	70	60	33	<10	58	78	55	113	<10		<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
Benzene #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
Toluene #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
m/p-Xylene #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
o-Xylene #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
PCB 28 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 52 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 118 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 138 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 153 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 180 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	<35	<35	<35	<35	<175 AA	<35	<35	<35		<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73-76		LOD/LOR	Units	Method No.
Sample ID	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10				
Depth	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00				
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T				
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023				
Natural Moisture Content	12.8	17.8	15.2	24.5	25.6	13.4	10.2	18.5	17.7		<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	11.4	15.1	13.2	19.7	20.4	11.8	9.2	15.6	15.1		<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	-	-	-	-	-	-	-	-		<0.0015	g/l	TM38/PM20
Chromium III	40.4	31.5	40.3	53.1	60.7	42.7	25.7	55.4	45.9		<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.95	0.93	1.11	2.50	8.05	1.31	0.76	1.37	2.62		<0.02	%	TM21/PM24
Acid Reserve	-	-	-	-	-	-	-	-	-		<0.000	gNaOH/100g	TM160/PM110
Alkali Reserve	-	-	-	-	-	-	-	-	-		<0.000	gNaOH/100g	TM160/PM110
pH #	8.36	8.17	8.29	7.99	8.04	8.12	8.22	8.40	8.20		<0.01	pH units	TM73/PM11
Mass of raw test portion	0.0989	0.1043	0.1077	0.111	0.1224	0.1073	0.1009	0.1062	0.1084			kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09			kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05			
Depth	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023			
Dissolved Antimony #	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.003	0.005	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.05	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	<0.0025	0.0025	0.0026	<0.0025	<0.0025	0.0053	0.0052	0.0064	0.0056	0.0029	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	<0.025	<0.025	0.026	<0.025	<0.025	0.053	0.052	0.064	0.056	0.029	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.049	0.046	0.020	0.026	0.006	0.032	0.028	0.049	0.022	0.006	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.49	0.46	0.20	0.26	0.06	0.32	0.28	0.49	0.22	0.06	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	0.0106	0.0187	<0.0015	<0.0015	<0.0015	<0.0015	0.0045	<0.0015	<0.0015	<0.0015	<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	0.106	0.187	<0.015	<0.015	<0.015	<0.015	0.045	<0.015	<0.015	<0.015	<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.014	<0.007	0.011	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.14	<0.07	0.11	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.006	0.013	0.005	0.007	0.007	0.014	0.006	0.021	0.011	0.006	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.06	0.13	0.05	0.07	0.07	0.14	0.06	0.21	0.11	0.06	<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.003	0.004	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.04	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	0.5	1.0	0.4	0.5	0.3	0.5	<0.3	0.5	0.4	<0.3	mg/l	TM173/PM0
Fluoride	<3	5	10	4	5	3	5	<3	5	4	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	65.3	64.3	497.7	817.4	9.9	0.6	64.8	15.6	27.8	9.4	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	653	643	4978	8174	99	6	648	156	278	94	<5	mg/kg	TM38/PM0
Chloride #	1.1	3.5	<0.3	<0.3	<0.3	0.6	2.0	0.8	<0.3	1.6	<0.3	mg/l	TM38/PM0
Chloride #	11	35	<3	<3	<3	6	20	8	<3	16	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	4	5	<2	<2	<2	9	5	7	3	<2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	40	50	<20	<20	<20	90	50	70	30	<20	<20	mg/kg	TM60/PM0
pH	11.01	11.19	7.93	7.70	8.19	8.33	9.56	8.32	8.28	8.33	<0.01	pH units	TM73/PM0
Total Dissolved Solids #	220	258	805	1250	64	125	149	131	93	68	<35	mg/l	TM20/PM0
Total Dissolved Solids #	2199	2580	8051	12500	640	1250	1489	1310	930	680	<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73-76		LOD/LOR	Units	Method No.
Sample ID	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10				
Depth	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00				
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T				
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023				
Dissolved Antimony #	0.033	0.004	<0.002	<0.002	<0.002	0.008	<0.002	0.002	<0.002		<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	0.33	0.04	<0.02	<0.02	<0.02	0.08	<0.02	0.02	<0.02		<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	0.0039	<0.0025	<0.0025	<0.0025	0.0037	<0.0025	<0.0025	0.0036	<0.0025		<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	0.039	<0.025	<0.025	<0.025	0.037	<0.025	<0.025	0.036	<0.025		<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.027	0.045	0.032	0.039	0.018	0.028	0.072	0.018	0.031		<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.27	0.45	0.32	0.39	0.18	0.28	0.72	0.18	0.31		<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015		<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015		<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007		<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.017	0.014	0.016	0.014	0.009	0.012	0.014	0.010	0.011		<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.17	0.14	0.16	0.14	0.09	0.12	0.14	0.10	0.11		<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	0.002	<0.002	<0.002	0.002	<0.002	0.002	0.005	<0.002	<0.002		<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.02		<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	0.032	<0.003	<0.003	<0.003	0.060	0.003	0.004	0.015		<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	0.32	<0.03	<0.03	<0.03	0.60	0.03	0.04	0.15		<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	0.4	0.3	0.3	<0.3	0.4	0.3	0.4		<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	4	<3	<3	<3	4	3	4		<3	mg/kg	TM173/PM0
Sulphate as SO4 #	23.8	19.9	11.4	15.4	66.6	20.1	31.6	26.0	20.7		<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	238	199	114	154	666	201	316	260	207		<5	mg/kg	TM38/PM0
Chloride #	<0.3	<0.3	<0.3	0.4	1.3	<0.3	0.5	0.5	0.7		<0.3	mg/l	TM38/PM0
Chloride #	<3	<3	<3	4	13	<3	5	5	7		<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	4	3	4	6	7	4	5	2	2		<2	mg/l	TM60/PM0
Dissolved Organic Carbon	40	30	40	60	70	40	50	20	20		<20	mg/kg	TM60/PM0
pH	8.29	8.13	8.19	8.30	8.18	8.25	8.17	8.19	7.92		<0.01	pH units	TM73/PM0
Total Dissolved Solids #	107	100	98	128	217	112	113	112	104		<35	mg/l	TM20/PM0
Total Dissolved Solids #	1071	1000	981	1280	2169	1120	1130	1120	1040		<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : EN12457_2

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40						
Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05						
Depth	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00						
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1	1	1	1						
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Solid Waste Analysis																
Total Organic Carbon #	0.68	0.41	0.58	0.42	0.60	1.30	0.59	0.87	1.08	0.55	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025 SV	<0.025	<0.025 SV	<0.025 SV	<0.025	<0.025	<0.025	<0.025	<0.025 SV	<0.025	6	-	-	<0.025	mg/kg	TM36/PM12
Sum of 7 PCBs #	<0.175 BA	<0.175 BA	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	826	971	50	155	<30	<30	216	<30	227	<30	500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22	0.25	<0.22	<0.22	<0.22	0.29	0.60	<0.22	9.66	<0.22	-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	0.85	1.32	<0.64	<0.64	<0.64	<0.64	1.72	<0.64	18.45	<0.64	100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	<0.025	<0.025	0.026	<0.025	<0.025	0.053	0.052	0.064	0.056	0.029	0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.49	0.46	0.20	0.26	0.06	0.32	0.28	0.49	0.22	0.06	20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium #	0.106	0.187	<0.015	<0.015	<0.015	<0.015	0.045	<0.015	<0.015	<0.015	0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.14	<0.07	0.11	<0.07	2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<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	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.06	0.13	0.05	0.07	0.07	0.14	0.06	0.21	0.11	0.06	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.04	<0.02	<0.02	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.05	<0.02	<0.02	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<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	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	2199	2580	8051	12500	640	1250	1489	1310	930	680	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	40	50	<20	<20	<20	90	50	70	30	<20	500	800	1000	<20	mg/kg	TM60/PM0
Dry Matter Content Ratio	84.3	81.1	85.6	84.9	91.2	76.9	87.6	77.5	85.6	84.8	-	-	-	<0.1	%	NONE/PM4
Moisture Content 105C (% Dry Weight)	18.6	23.3	16.8	17.8	9.7	30.1	14.1	29.1	16.8	18.0	-	-	-	<0.1	%	PM4/PM0
pH #	11.54	11.50	8.14	8.10	8.57	7.82	10.18	7.85	8.30	8.40	-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	5	10	4	5	3	5	<3	5	4	10	150	500	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	653	643	4978	8174	99	6	648	156	278	94	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	11	35	<3	<3	<3	6	20	8	<3	16	800	15000	25000	<3	mg/kg	TM38/PM0

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : EN12457_2

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73-76		Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Sample ID	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10							
Depth	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00							
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1	1	1	1							
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023							
Solid Waste Analysis																
Total Organic Carbon #	0.95	0.93	1.11	2.50	8.05	1.31	0.76	1.37	2.62		3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025 SV	<0.025	<0.025 SV	<0.025	<0.025	<0.025 SV	<0.025 SV	<0.025		6	-	-	<0.025	mg/kg	TM36/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035	<0.035	<0.175 BA	<0.035	<0.035	<0.035		1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	165	87	47	<30	<30	111	215	59	45		500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	1.04	0.36	0.47	1.52	1.41	4.82	0.58	1.44	0.49		-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	2.04	0.71	0.88	2.73	2.40	8.31	1.04	2.55	0.86		100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	0.039	<0.025	<0.025	<0.025	0.037	<0.025	<0.025	0.036	<0.025		0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.27	0.45	0.32	0.39	0.18	0.28	0.72	0.18	0.31		20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium #	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015		0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.17	0.14	0.16	0.14	0.09	0.12	0.14	0.10	0.11		0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.02		0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	0.33	0.04	<0.02	<0.02	<0.02	0.08	<0.02	0.02	<0.02		0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	0.32	<0.03	<0.03	<0.03	0.60	0.03	0.04	0.15		4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	1071	1000	981	1280	2169	1120	1130	1120	1040		4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	40	30	40	60	70	40	50	20	20		500	800	1000	<20	mg/kg	TM60/PM0
Dry Matter Content Ratio	90.5	86.2	83.8	81.1	73.4	83.9	88.8	84.7	83.2		-	-	-	<0.1	%	NONE/PM4
Moisture Content 105C (% Dry Weight)	10.5	16.0	19.4	23.3	36.3	19.2	12.6	18.1	20.2		-	-	-	<0.1	%	PM4/PM0
pH #	8.36	8.17	8.29	7.99	8.04	8.12	8.22	8.40	8.20		-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	<3	4	<3	<3	<3	4	3	4		10	150	500	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	238	199	114	154	666	201	316	260	207		1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	<3	<3	<3	4	13	<3	5	5	7		800	15000	25000	<3	mg/kg	TM38/PM0

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Ground Investigations Ireland

Reference: 12689-03-23

Location: Gowan Motors Site Naas Road

Contact: Stephen Kealy

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
23/6708	1	TP01	0.60-1.20	1-4	Degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP01	2.50	5-8	Degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP02	0.70-1.60	9-12	Trace of degraded diesel & Possible tarmac/bitumen
23/6708	1	TP02	3.20	13-16	Trace of degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP03	0.80-1.20	17-20	No interpretation possible
23/6708	1	TP03	2.70	21-24	No interpretation possible
23/6708	1	TP04	1.10-1.50	25-28	Trace of degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP04	3.20	29-32	No interpretation possible
23/6708	1	TP05	0.50-1.00	33-36	Trace of degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP05	2.00	37-40	No interpretation possible
23/6708	1	TP06	0.50	41-44	Trace of degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP07	0.50	45-48	Possible trace of degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP07	1.00	49-52	Trace of possible lubricating oil
23/6708	1	TP08	0.50-1.00	53-56	No interpretation possible
23/6708	1	TP08	2.00	57-60	Possible tarmac/bitumen
23/6708	1	TP09	0.60-1.50	61-64	Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP09	1.90	65-68	Lubricating oil & Possible naturally occurring compounds
23/6708	1	TP10	0.50	69-72	Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP10	1.00	73-76	Possible trace of lubricating oil

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/6708	1	TP01	0.60-1.20	4	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP01	2.50	8	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP02	0.70-1.60	12	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP02	3.20	16	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP03	0.80-1.20	20	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP03	2.70	24	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP04	1.10-1.50	28	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP04	3.20	32	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/6708	1	TP05	0.50-1.00	36	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP05	2.00	40	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP06	0.50	44	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stones
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP07	0.50	48	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP07	1.00	52	Matthew Turner	16/05/2023	**General Description (Bulk Analysis)**	Brown soil/Stone
					Matthew Turner	16/05/2023	**Asbestos Fibres**	NAD
					Matthew Turner	16/05/2023	**Asbestos ACM**	NAD
					Matthew Turner	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP08	0.50-1.00	56	Matthew Turner	16/05/2023	**General Description (Bulk Analysis)**	Brown soil/Stone
					Matthew Turner	16/05/2023	**Asbestos Fibres**	NAD
					Matthew Turner	16/05/2023	**Asbestos ACM**	NAD
					Matthew Turner	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP08	2.00	60	Matthew Turner	16/05/2023	**General Description (Bulk Analysis)**	Brown soil/Stone
					Matthew Turner	16/05/2023	**Asbestos Fibres**	NAD
					Matthew Turner	16/05/2023	**Asbestos ACM**	NAD
					Matthew Turner	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP09	0.60-1.50	64	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	Fibre Bundles
					Anthony Carman	16/05/2023	**Asbestos ACM**	ACM Debris
					Anthony Carman	16/05/2023	**Asbestos Type**	Chrysotile
					Remigiusz Blichowski	11/07/2023	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	11/07/2023	**Total Detailed Gravimetric Quantification (% Asb)**	0.011 (mass %)
					Remigiusz Blichowski	11/07/2023	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	0.011 (mass %)
					Remigiusz Blichowski	11/07/2023	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	11/07/2023	**Asbestos Gravimetric & PCOM Total**	0.011 (mass %)
23/6708	1	TP09	1.90	68	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP10	0.50	72	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/6708	1	TP10	0.50	72	Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP10	1.00	76	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD

Client Name: Ground Investigations Ireland

Reference: 12689-03-23

Location: Gowan Motors Site Naas Road

Contact: Stephen Kealy

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Method No.	NDP Reason
23/6708	1	TP01	0.60-1.20	1-4	TM160/PM110	pH > 4.00
23/6708	1	TP01	2.50	5-8	NONE/NONE	Sample unsuitable for this test
23/6708	1	TP01	2.50	5-8	TM38/PM20	Sample unsuitable for this test
23/6708	1	TP01	2.50	5-8	TM160/PM110	pH > 4.00

Client Name: Ground Investigations Ireland

Reference: 12689-03-23

Location: Gowan Motors Site Naas Road

Contact: Stephen Kealy

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
23/6708	1	TP05	0.50-1.00	33-36	PCB	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/6708

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution
BA	x5 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/6708

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes

EMT Job No: 23/6708

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes

EMT Job No: 23/6708

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM131	Quantification of Asbestos Fibres and ACM based on HSG 248 Second edition:2021, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes
TM160	Titrimetric determination of acid reserve to pH 4.0 or alkali reserve to pH 10.0 based on method C14.2 Canadian Government (2013).	PM110	Preparation of a 10% (w/w) aqueous solution of soil in distilled water			AR	No
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

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CONSTRUCTION MATERIALS TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Test Report
Point Load Strength Index

Project :	Gowan Motors Site Naas Road	**Job Number**	12689-03-23
Client :	Ground Investigations Ireland	**Lab Ref No**	ST 24581
	Catherinestown House, Hazelhatch Road	**Date Received**	29/06/2023
	Newcastle, Co. Dublin	**Date Tested**	06/07/2023
Originator	Stephen Kealy	**Date Reported**	07/07/2023

Point Load Strength Index

Sample No:-	Depth (m)	Description	Type	Orientation	W (mm)	D (mm)	P (kN)	De^2 (mm^2)	De (mm)	I_s	F	$I_{s(50)}$ MN/m^2
BH03	14.21- 14.30	1	D	⊥	78.0	64.0	23.00	4096	64.0	5.615	1.12	6.27
BH03	16.53-16.58	1	D	⊥	65.0	63.0	28.00	3969	63.0	7.055	1.11	7.83
BH01	8.30-8.47	1	D	⊥	66.0	63.0	17.00	3969	63.0	4.283	1.11	4.75
BH01	9.25-9.31	1	D	⊥	31.0	63.0	2.00	3969	63.0	0.504	1.11	0.56
BH01	10.10-10.17	2	D	⊥	51.0	63.0	3.50	3969	63.0	0.882	1.11	0.98
BH01	10.53-10.69	2	D	⊥	47.0	62.0	4.60	3844	62.0	1.197	1.10	1.32
BH01	11.34-13.65	2	D	⊥	60.0	63.0	4.40	3969	63.0	1.109	1.11	1.23
RC02	12.51-12.60	1	D	⊥	79.0	63.0	18.00	3969	63.0	4.535	1.11	5.03
RC02	13.82-14.05	2	D	⊥	40.0	63.0	1.30	3969	63.0	0.328	1.11	0.36
RC02	14.68-14.72	1	D	⊥	60.0	63.0	13.0	3969	63.0	3.275	1.11	3.63

Description 1 : Grey Rock
Description 2 : Mudrock/Shale
Description 3 :

$I_{s(50)}$ MN/m^2 for	Description		
Min	0.36		
Mean	3.20		
Max	7.83		

Test
A = axial
D = diametrical

Relationship to planes of weakness
IL = irregular lump
II = parallel
⊥ = perpendicular

	$I_{s(50)}$ MN/m^2	U.C.S. MN/m^2
Extremely Weak	<0.05	0.6-1.0
Very Weak	0.05-0.20	1.0-5.0
Weak	0.20-0.50	5.0-25.0
Medium Strong	0.50-2.00	25-50
Strong	2.00-4.50	50-100
Very Strong	4.50-9.00	100-250
Extremely Strong	9.00 +	>250

Approved Signature
James Ward, Operations Manager
CMTL Ireland Limited

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CONSTRUCTION MATERIALS TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Test Report
Uniaxial Compressive Strength

Project:	Gowan Motors Site Naas Road	**Job Number**	12689-03-23
Client:	Ground Investigations Ireland	**Lab Ref No**	ST 24582
	Catherinestown House, Hazelhatch Road	**Date Received**	29/06/2023
	Newcastle. Co. Dublin	**Date Tested**	06/07/2023
Originator:	Stephen Kealy	**Date Reported**	07/07/2023

Sample Reference	Moisture Content	Density (Mg/m^3)	Uniaxial Compressive Strength (N/mm^2)
BH03 14.30-14.59m	1.3	2718	88.9
BH01 10.69-10.86m	1.7	2612	25.6
RC02 13.52-13.71m	1.4	2600	48.9

Approved Signature
James Ward, Operations Manager
CMTL Ireland Limited

APPENDIX 7 – Groundwater Monitoring

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GROUNDWATER MONITORING

Gowan Motors Naas Road

BOREHOLE	DATE	TIME	GROUNDWATER (m BGL)	Comments
BH01	07/07/2023	10:01:00	4.91	
BH02	07/07/2023	10:05:00	4.29	

GROUND INVESTIGATIONS IRELAND
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Ground Investigations Ireland

Former Gowan Motors Site

Barrett Mahony

Waste Classification Report

July 2023

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DOCUMENT CONTROL SHEET

Project Title	Former Gowan Motors Site
Engineer	Barrett Mahony Consulting Engineers
Project No	12689-03-22
Document Title	Waste Classification Report

Rev.	Status	Author(s)	Reviewed By	Approved By	Office of Origin	Issue Date
A	Final	B Sexton	S Kealy	B Sexton	Dublin	13 July 2023

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1.0 Preamble

Ground Investigations Ireland (GII) was appointed by Barrett Mahony Consulting Engineers (BMCE) to carry out a Waste Classification Assessment for a proposed residential development Carriglea Business Park, Dublin 12. All site investigation works were carried out under the supervision of a GII Geo-Environmental Engineer. The site investigation works were completed between April and May 2023.

2.0 Purpose & Scope

It is understood that as part of the proposed development there may be an excavation to accommodate foundations, services, pavements and carparking and as such the material which may be excavated and removed from site needs to be assessed in terms of waste disposal outlets. The waste classification was carried out in parallel with a wider geotechnical site investigation.

The purpose of the waste classification exercise was as follows.

- Assess the site in terms of historical use; and
- Classification, in terms of waste management and final disposal outlets, of material that may require disposal following excavation during the construction phase.

The scope of the work undertaken to facilitate the waste classification exercise included the following:

- Historical desk study;
- Excavation of ten (10 No.) trial pits;
- Boring of three (3 No.) cable percussion boreholes;
- Boring of three (3 No.) follow on rotary core boreholes;
- Collection of subsoil samples for chemical analysis;
- Environmental laboratory testing; and
- Waste classification.

The additional scope of the geotechnical investigation included the following:

- Carry out 2 No. Slit Trenches to determine the depth of an existing Culvert
- Carry out 2 No. Soakaways to determine a soil infiltration value to BRE digest 365
- Installation of 2 No. Groundwater monitoring wells; and
- Geotechnical Laboratory testing.

The geotechnical site investigation is discussed in the GII Ground Investigation Report Dated 12th June 2023.[1]

[1] Ground Investigations Ireland, Former Gowan Motors Site, Ground Investigation Report, 12th June 2023.

3.0 Limitations

GII has prepared this report for the sole use of BMCE. No other warranty, express or implied, is made as to the professional advice included in this report or other services provided by GII.

The conclusions and recommendations contained in this report are based upon information provided by others and the assumption that all relevant information has been provided by those bodies from whom it has been requested. Information obtained from third parties has not been independently verified by GII, unless otherwise stated in this report.

This report has been prepared in line with best industry standards and within the project's budgetary and time constraints. The methodology adopted and the sources of information used by GII in providing its services are outlined in this report.

The work described was undertaken between April and May 2023, this report is based on the conditions encountered and the information available during that period. The scope of this Report and the services are accordingly factually limited by these circumstances.

Site investigation locations were selected by the consultant engineer.

GII disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to GII's attention after the date of the Report.

The conclusions presented in this report represent GII's best professional judgement based on review of site conditions observed during any site visit and the relevant information available at the time of writing. The opinions and conclusions presented are valid only to the extent that the information provided was accurate and complete.

The investigation was focused on a broad assessment of the subsoil quality across the site. The assessment did not extend to the identification of asbestos containing materials associated with any on-site structures, ground gases or groundwater.

The waste classification exercise is reflective of and applicable to the ground conditions on site at the time of the site investigation and sampling. Alterations to the ground conditions or any further excavations carried out on site following the investigation are not reflected in this report.

4.0 Site Location and Layout

The site is located at Carriglea Business Park, Naas Road, Walkinstown, Dublin 12 (Figure 1 Appendix 1). At the time of the assessment the site was comprised of a large industrial/commercial unit with associated tarmac paved roadways and parking. The surrounding land use was commercial.

5.0 Site History

GII reviewed the aerial photographs and historical maps maintained by the Ordnance Survey of Ireland (OSI) and the google imagery records. These included the 6-inch maps that were produced between 1829 and 1842, the 25-inch maps that were produced between 1888 and 1913 and the 6-inch Cassini Maps that

were produced between the 1830's and 1930's. The site is located in an area occupied by a Mill Pond on all historical maps reviewed.
Based on a review of the OSI and Google Imagery aerial photograph records the site has been in its current state of development since at least 1995.

6.0 Subsurface Exploration

6.1. General

During the ground investigation a programme of intrusive investigation specified by the Consulting Engineer was undertaken to determine the sub surface conditions at the proposed site. Regular sampling and in-situ testing was undertaken in the exploratory holes to facilitate the geotechnical descriptions and to enable laboratory testing to be carried out on the soil samples recovered during excavation and drilling.
The procedures used in this site investigation are in accordance with Eurocode 7 Part 2: Ground Investigation and testing (ISEN 1997 – 2:2007) and B.S. 5930:2015.

6.2. Trial Pits

The trial pits were excavated using an 8T tracked excavator at the locations shown in Figure 5. The locations were checked using a CAT scan to minimise the potential for encountering services during the excavation. The trial pits were sampled, logged and photographed by a Geotechnical Engineer/Engineering Geologist prior to backfilling with arisings. Notes were made of any services, inclusions, pit stability, groundwater encountered and the characteristics of the strata encountered and are presented on the trial pit logs which are provided in Appendix 2 of this Report.

6.3. Cable Percussion Boreholes

The Cable Percussion Boreholes were drilled, at the locations shown in Figure 5, using a Dando 2000 drilling rig with regular in-situ testing and sampling undertaken to facilitate the production of geotechnical logs and laboratory testing.
The standard method of boring in soil for site investigation is known as the Cable Percussion method. It consists of using a Shell in non cohesive soils and a clay cutter in cohesive soils, both operated on a wire cable. Very hard soils, boulders and other hard obstructions are broken up by chiselling and the fragments removed with the Shell. Where ground conditions made it necessary, the borehole was lined with 200mm diameter steel casing. While the use of the Cable Percussion method of boring gives the maximum data on soil conditions, some mixing of laminated soil is inevitable. For this reason, thin lenses of granular material may not be noticed. Disturbed samples were taken from the boring tools at suitable depths, so that there is a representative sample at the top of each change in stratum and thereafter at regular intervals down the borehole until the next stratum was encountered. The disturbed samples were then sealed and sent to the laboratory where they were visually examined to confirm the description of the relevant strata.
Standard Penetration Tests were carried out in the boreholes. The results of these tests, together with the depths at which the tests were taken are shown on the accompanying borehole records. The test consists

of a thick wall sampler tube, 50mm external diameter, being driven into the soil by a monkey weighing 63.5kg and with a free drop of 760mm. For gravels and glacial till the driving shoe was replaced by a solid 60º cone. The Standard Penetration Test number referred to as the 'N' value is the number of blows required to drive the tube 300mm, after an initial penetration of 150mm. The number gives a guide to the consistency of the soil and can also be used to estimate the relative strength/density at the depth of the test and also to estimate the bearing capacity and compressibility of the soil. The cable percussion borehole logs are provided in Appendix 4 of this Report.

6.4. Rotary Boreholes

The rotary coring was carried out by a track mounted T44 Beretta rig at the locations shown in Figure 5. The rotary boreholes were completed from the ground surface or alternatively, where noted on the individual borehole log, from the base of the cable percussion borehole where a temporary liner was installed to facilitate follow-on rotary coring.

The T44 Beretta is equipped with rubber tracks which allow for short travel on pavement surfaces avoiding any damage to the surface. The T44 Beretta utilises a triple tube core barrel system operated using a wireline drilling process. The outer barrel is rotated by the drill rods and at its lower end, carries the coring bit. The inner barrel is mounted on a swivel so that it does not rotate during the process. The third barrel or liner is placed within the second one to retain the core intact and to preserve as much as possible the fabric of the drilling stratum. The core is cut by the coring bit and passes to the inner liner. The core is brought up to the surface within the inner barrel on a small diameter wire rope or line attached to the "overshoot" recovery tool which is then placed into a core box in order of recovery. A drilling fluid, typically air mist or water flush is passed from the surface through hollow drill rods to the drill bit and is used to cool the drill bit. Temporary casing is used in some situations to support unstable ground or to seal off fissures or voids. It should be noted that the rotary coring can only achieve limited recovery in overburden, particularly granular or weakly cemented strata due to the flushing medium washing away the cohesive fraction during coring. The recovery achieved, where required is noted on the borehole logs and core photographs are provided to allow assessment of the core recovered. The rotary borehole logs are provided in Appendix 5 of this Report.

6.5. Surveying

The exploratory hole locations have been recorded using a KQGeo M8 GNSS System which records the coordinates and elevation of the locations to ITM or Irish National Grid as required by the project specification. The coordinates and elevations are provided on the exploratory hole logs in the appendices of this Report.

7.0 Ground Conditions

7.1. General

The ground conditions encountered during the investigation are summarised below with reference to insitu and laboratory test results. The full details of the strata encountered during the ground investigation are provided in the exploratory hole logs included in the appendices of this report. For full geotechnical descriptions of the ground conditions refer to the geotechnical site investigation report refenced in Section 2.0.

The sequence of strata encountered was consistent across the site and generally comprised;

- Surfacing
- Made Ground
- Possible Made Ground
- Granular Deposits
- Cohesive Deposits
- Weathered Bedrock
- Bedrock

SURFACING: Tarmac surfacing was present in all the exploratory holes typically to a depth of 0.20m BGL.
MADE GROUND: Made Ground deposits were encountered beneath the Surfacing and were present to a maximum depth of 8.20m BGL. These deposits were described generally as *brown sandy slightly gravelly CLAY with frequent cobbles and boulders and contained low fragments of concrete, red brick, glass and plastic.*

POSSIBLE MADE GROUND: Possible Made Ground deposits were encountered beneath the Made Ground and were present to a maximum depth of 6.40m BGL. These deposits were described generally as *brown sandy slightly gravelly CLAY with a low amount of cobbles.*

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Made Ground to a maximum depth of 8.0m BGL and were described typically as *brown sandy gravelly CLAY with occasional cobbles and boulder overlying a stiff to very stiff dark grey/black sandy gravelly CLAY.* The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the glacial till matrix. The strength of the cohesive deposits were typically firm where encountered. These deposits had low cobble and boulder content, where noted on the exploratory hole logs.

GRANULAR DEPOSITS: Granular deposits were encountered within the cohesive deposits at the location of BH03 and were typically described as *grey/ brown clayey sandy sub rounded to sub angular fine to coarse GRAVEL with occasional cobbles and rare boulders.* The secondary sand/gravel and silt/clay constituents varied across the site and with depth while occasional or frequent cobble and boulder content also present where noted on the exploratory hole logs.

BEDROCK: The rotary core boreholes recovered *weak to strong grey/dark grey fine to medium grained laminated LIMESTONE interbedded with weak black fine grained laminated Mudstone.*
The depth to rock varies from 8.13m BGL in BH01 to a maximum of 13.54m BGL in BH03. The total core recovery is good, typically 100% with some of the uppermost runs dropping to 80 or 90%. The SCR and RQD both are relatively poor in the upper weathered zone, often recovered as non-intact, however both indices show an increase with depth in each of the boreholes.

8.0 Laboratory Analysis

8.1. Analysis Suite

In order to assess materials, which may be excavated and removed from site, in terms of waste classification, a selection of samples collected were analysed for a suite of parameters which allows for the assessment of the soils in terms of total pollutant content for classification of materials as *hazardous* or *non-hazardous* (RILTA Suite). The suite also allows for the assessment of the soils in terms of suitability for placement at various categories of landfill. The parameter list for the RILTA suite includes analysis of the solid samples for arsenic, barium, cadmium, chromium, copper, cyanide, lead, nickel, mercury, zinc, speciated aliphatic and aromatic petroleum hydrocarbons, pH, sulphate, sulphide, moisture content, soil organic matter and an asbestos screen.
The RILTA suite also includes those parameters specified in the EU Council Decision establishing criteria for the acceptance of waste at Landfills (Council Decision 2003/33/EC), which for the solid samples are pH, total organic carbon (TOC), speciated aliphatic and aromatic petroleum hydrocarbons, BTEX, phenol, polychlorinated biphenyls (PCB) and PAH.
In line with the requirement of Council Decision 2003/33/EC a leachate was generated from the solid samples which was in turn analysed for antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, chloride, fluoride, soluble sulphate, sulphide, phenols, dissolved organic carbon (DOC) and total dissolved solids (TDS).
The laboratory testing was completed by Element Materials Technology (EMT) in the UK; EMT is a UKAS accredited laboratory. The full laboratory reports are included in Appendix 4.

8.2. Asbestos

Asbestos fibres were detected in the sample TP-009 between 0.60m and 1.50m BGL. The laboratory identified asbestos containing materials (ACMs) in the sample in the form of ACM debris. The level detected in all cases was below the hazardous level of 0.1%[2].

Asbestos was not detected in the remainder of the samples.

The levels which are reported by the laboratory have been reported as dry weight. In order to most accurately assess the level of asbestos in the waste in its natural form and not in the dried state created for

[2] Environment Agency (2018). Technical Guidance WM3 - Guidance on the classification and assessment of waste (1st Edition V1.1 May 2018) Technical Guidance WM3 – page 19.

laboratory testing the level corrected using a moisture correction factor for each sample is reported and assessed against the hazardous threshold.

Table 1 Asbestos Detections

Sample ID	Depth (m)	Asbestos (Dry Weight) %	Asbestos (Moisture Corrected Weight) %	ACM Detected
TP-09	0.60-1.50	0.011	0.0097	ACM Debris

9.0 Waste Classification

GII understands that any materials which may be excavated and removed from site would meet the definition of waste under the Waste Framework Directive. Due to the varying levels of anthropogenic materials encountered in the made ground there are potentially two sets of List of Waste (LoW)[3] codes with "mirror" entries which may be applied to excavated materials to be removed from site.

1. 17-05-03* (soil and stone containing dangerous substances, classified as hazardous) or 17-05-04 (soil and stone other than those mentioned in 17-05-03, not hazardous); or

2. 17-09-03* (other construction and demolition wastes (including mixed wastes) containing hazardous substances) or 17-09-04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03).

Where waste is a mirror entry in the LoW, it can be classified via a process of analysis against standard criteria set out in the Waste Framework Directive. The assessment process is described in detail in guidance published by the Irish (EPA Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-Hazardous, June 2015) and UK regulatory authorities (Guidance on the Classification and Assessment of Waste: Technical Guidance WM3, 2015). The assessment involves comparison of the concentration of various parameters against defined threshold values.

The specific LoW code which should be applied to the material at each sample location is summarised in Table 4 below. These codes are only applicable where the material is being removed from a site as a waste.

GII use HazWasteOnline™, a web-based commercial waste classification software tool which assists in the classification of potentially hazardous materials. This tool was used to determine whether the materials sampled are classified as hazardous or non-hazardous. The use of the online tool is accepted by the EPA (EPA 2014).

The conclusions presented in the report are based on GII's professional opinion. **It should be noted that the environmental regulator (in this case the EPA) and the waste acceptor (in this case a landfill operator) shall decide whether a waste is hazardous or non-hazardous and suitable for disposal at their facility.**

[3] Formerly European Waste Catalogue Codes (EWC Codes)

9.1. HazWasteOnLineTM Results

In total, nineteen (19 No.) samples were assessed using the HazWasteOnLine™ Tool. The samples TP-01 0.60-1.20m and TP-01 2.50m were classified as hazardous due to elevated levels of TPH and the associated hazardous properties HP7[4] Carcinogenic and HP11[5] Mutagenic. The remaining samples were classified as being non-hazardous. The complete HazWasteOnLine™ report for all samples is included in Appendix 4.

Initially the samples TP-01 0.60 to 1.20m BGL and TP-01 2.50m BGL were classified as hazardous based on the hazardous properties HP4[6] (Irritant) and HP8[7] (Corrosive) due to elevated levels of pH. The elevated pH was likely due to the presence of concrete in made ground as noted throughout the material logged. Although the pH above 11.5 indicates that the material may be corrosive where pH is being used as the basis of the classification, the acid/alkali reserve[8] can be taken into consideration. The acid/alkali reserve provides a measure of the capability of an acid or alkali to maintain its pH, combined with pH it provides a good indication of corrosivity. The acid/alkali reserve is determined by titration and is expressed as the grams of sodium hydroxide (equivalent) per 100 g of substance required to adjust the pH to the appropriate value. A waste should be considered as corrosive if:

- pH + 1/12 alkali reserve ≥ 14.5; or
- pH - 1/12 acid reserve ≤ -0.5.

If a waste is not classified as corrosive on this basis, it may be classified as irritant if:

- pH + 1/6 alkali reserve ≥ 13; or
- pH - 1/6 acid reserve ≤ 1.

Further analysis of the samples indicates that the alkali reserves demonstrate that the material is neither corrosive and or irritant. The sample is therefore not considered hazardous.

Table 2 Alkali Reserve Calculation

Parameter	**TP-01 0.60-1.20m**	**TP-01 2.50m**		
Alkali Reserve	0.007	0.024		
pH	11.54	11.5	**Corrosive**	
			Lower Limit	Upper Limit
pH + 1/12 alkali reserve	11.54	11.50	-0.5	14.5
			Irritant	
			Lower Limit	Upper Limit
pH + 1/6 alkali reserve	11.54	11.50	1	13

[4] HP 7: Carcinogenic "waste which induces cancer or increases its incidence".
[5] 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".
[6] Waste which on application can cause skin irritation or damage to the eye.
[7] Waste which on application can cause skin corrosion.
[8] Young, J.R., How, M.J., Walker, A.P. and Worth, W.H.M. 1988. “Classification as corrosive or irritant to skin of preparations containing acidic or alkaline substances, without testing on animals”, Toxic In Vitro 2(1): 19-26.

The specific LoW code which should be applied to the material at each SI location is summarised in Table 4 below. The assigning of the LoW code is based on observations recorded in the trial pits and boreholes, an estimation of the % of anthropogenic material present and the results of the HazWasteOnline™ output. The final LoW codes applied at the time of disposal may vary due to variations in % of anthropogenic material observed in the excavation phase. Where there is in excess of 2%[9] anthropogenic material observed the LoW code 17 09 04 may be applied.

9.2. Landfill Waste Acceptance Criteria

Waste Acceptance Criteria (WAC) have been agreed by the EU (Council Decision 2003/33/EC) and are only applicable to material if it is to be disposed of as a waste at a landfill facility. Each individual member state and licensed operators of landfills may apply more stringent WAC. WAC limits and the associated laboratory analysis are not suitable for use in the determination of whether a waste is hazardous or non-hazardous. The data have been compared to the WAC limits set out in Council Decision 2003/33/EC as well as the specific WAC which the EPA have applied to the Walshestown and Integrated Materials Solutions (IMS) Landfills. The Walshestown and IMS landfills have higher limits for a range of parameters while still operating under an inert landfill licence. The WAC data considered in combination with the waste classification outlined in Section 9.1 allows the most suitable waste category to be applied to the material tested. The potentially applicable waste categories are summarised in Table 3. A summary of the WAC data is presented in Appendix 6. The waste category assigned to each sample is summarised in Table 4.

Table 3 Potential Waste Categories for Disposal/Recovery

Waste Category	Classification Criteria
Category A Unlined Facilities	Soil and Stone only which are free from[10] anthropogenic materials such as concrete, brick, timber. Soil must be free from "contamination" e.g. PAHs, Hydrocarbons[11].
Category B1 Inert Landfill	Reported concentrations within inert waste limits, which are set out by the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002). Results also found to be non-hazardous using the HWOL[12] application.
Category B2 Inert Landfill	Reported concentrations greater than Category B1 criteria but less than IMS Hollywood Landfill acceptance criteria, as set out in their Waste Licence W0129-02. Results also found to be non-hazardous using the HWOL application.
Category C Non-Haz Landfill	Reported concentrations greater than Category B2 criteria but within non-haz landfill waste acceptance limits set out by the adopted EU

[9] EPA (2020) - Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities.
[10] Free from equates to less than 2%.
[11] Total BTEX 0.05mg/kg, Mineral Oil 50mg/kg, Total PAHs 1mg/kg, Total PCBs 0.05mg/kg and Asbestos No Asbestos Detected – EPA Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities, 2020.
[12] HazWasteOnLine™ Tool.

Waste Category	Classification Criteria
	Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002). Results also found to be non-hazardous using the HWOL application.
Category C 1 Non-Haz Landfill	As Category C but containing < 0.001% w/w asbestos fibres.
Category C 2 Non-Haz Landfill	As Category C but containing >0.001% and <0.01% w/w asbestos fibres
Category C 3 Non-Haz Landfill	As Category C but containing >0.01% and <0.1% w/w asbestos fibres.
Category D Hazardous Treatment	Results found to be hazardous using HWOL Application.
Category D 1 Hazardous Disposal	Results found to be hazardous due to the presence of asbestos (>0.1%).

9.3. Final Waste Categorisation

All samples were assessed in terms of waste classification using the HazWasteOnLine™ tool and also the WAC set out in Council Decision 2003/33/EC and the Walshestown/IMS specific WAC to give a final waste categorisation to determine the most appropriate disposal route for any waste generated. The final and most applicable waste category for each sample is summarised in Table 4.

Table 4 Individual Sample Waste Category

Sample ID	Sample Depth (m)	Material Type	Sample Date	LoW Code	Waste Category
TP01	0.60-1.20	Made Ground	24/04/2023	17 05 03	Category D
TP01	2.50	Made Ground	24/04/2023	17 05 03	Category D
TP02	0.70-1.60	Made Ground	24/04/2023	17 05 04	Category C
TP02	3.20	Made Ground	24/04/2023	17 05 04	Category C
TP03	0.80-1.20	Made Ground	24/04/2023	17 05 04	Category B1
TP03	2.70	Made Ground	24/04/2023	17 05 04	Category B1
TP04	1.10-1.50	Made Ground	24/04/2023	17 05 04	Category B1
TP04	3.20	Made Ground	24/04/2023	17 05 04	Category B1
TP05	0.50-1.00	Made Ground	24/04/2023	17 05 04	Category B1
TP05	2.00	Clay	24/04/2023	17 05 04	Category A
TP06	0.50	Made Ground	24/04/2023	17 05 04	Category C
TP07	0.50	Made Ground	24/04/2023	17 05 04	Category B1
TP07	1.00	Clay	24/04/2023	17 05 04	Category B1
TP08	0.50-1.00	Made Ground	24/04/2023	17 05 04	Category B1
TP08	2.00	Made Ground	24/04/2023	17 05 04	Category C
TP09	0.60-1.50	Made Ground	24/04/2023	17 05 04	Category C2

Sample ID	Sample Depth (m)	Material Type	Sample Date	LoW Code	Waste Category
TP09	1.90	Clay	24/04/2023	17 05 04	Category B1
TP10	0.50	Made Ground	24/04/2023	17 05 04	Category B1
TP10	1.00	Made Ground	24/04/2023	17 05 04	Category B1

10.0 Conclusions & Recommendations

The conclusions and recommendations given and opinions expressed in this report are based on the findings of the site investigation works and laboratory testing undertaken. Where any opinion is expressed on the classification of material between site investigation locations, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for conditions which have not been revealed by the findings at the site investigation locations.

10.1. Conclusions

10.1.1. Waste Classification

Based on the results of the HazWasteOnLine™ tool the samples TP-01 0.60-1.20m and TP-01 2.50m if being considered a waste can be classified as hazardous due to elevated levels of TPH. The remainder of the material sampled if being considered a waste can be classified as non-hazardous.

10.1.2. Asbestos

Asbestos fibres were detected in the sample TP-009 between 0.60m and 1.50m BGL. The laboratory identified asbestos containing materials (ACMs) in the sample in the form of ACM debris. The level detected in all cases was below the hazardous level of 0.1%.

10.1.3. Waste Categories

The most applicable waste categories for each of the samples if being considered a waste have been presented in Table 4.

10.2. Recommendations

10.2.1. Waste Transfer

In the event that material is excavated for removal from site, any firm engaged to transport waste material from site and the operator of any waste facility that will accept subsoils excavated from this site should be furnished with, at a minimum, copies of the **full unabridged** laboratory reports and HazWasteOnLine™ report for all samples presented in this report.

The material on site if excavated should be removed to the most appropriate facility under the waste categories and LoW codes identified in Table 4.

The non-hazardous material across the site if excavated should be removed from site to an appropriate facility under either the LoW codes 17 05 04 or 17 09 04. Where during excavation there is noted to be in excess of 2% anthropogenic material the appropriate LoW code which should be applied is 17 09 04.

The hazardous material across the site if excavated should be removed from site to an appropriate facility under either the LoW codes 17 05 03 or 17 09 03. Where during excavation there is noted to be in excess of 2% anthropogenic material the appropriate LoW code which should be applied is 17 09 03.

11.0 References

Environment Agency (2013). *Waste Sampling and Testing for Disposal to Landfill.*

Environment Agency (2015). *Technical Guidance WM3 - Guidance on the classification and assessment of waste (1st edition 2015) Technical Guidance WM3*.

Environmental Protection Agency (EPA) (2014). Letter to Licences *Re: Waste Classification & Haz Waste On-Line™*.

Environmental Protection Agency (EPA) (2015). *Waste Classification List of Waste & Determining if Waste is Hazardous or Non-hazardous.*

Environmental Protection Agency (EPA) (2020). *Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities*.

Environmental Protection Agency (EPA) (June 2019). *Guidance on Soil and Stone By-products in the context of article 27 of the European Communities (Waste Directive) Regulations 2011 Version 3.*

Association of Geotechnical and Geoenvironmental Specialists (2019). *Waste Classification for Soils – A Practitioners Guide.*

APPENDIX 1 - Figures

GROUND INVESTIGATIONS IRELAND

Ground Investigations Ireland Ltd.
Catherinstown House,
Hazelhatch Road,
Newcastle, Co. Dublin
www.gii.ie 01-6015175/5176

Client:

BM
BARRETT MAHONY

0 30 60 90 120 m

Project Title:
Former Gowan House Site

Drawing Title:
Figure 1 Site Location

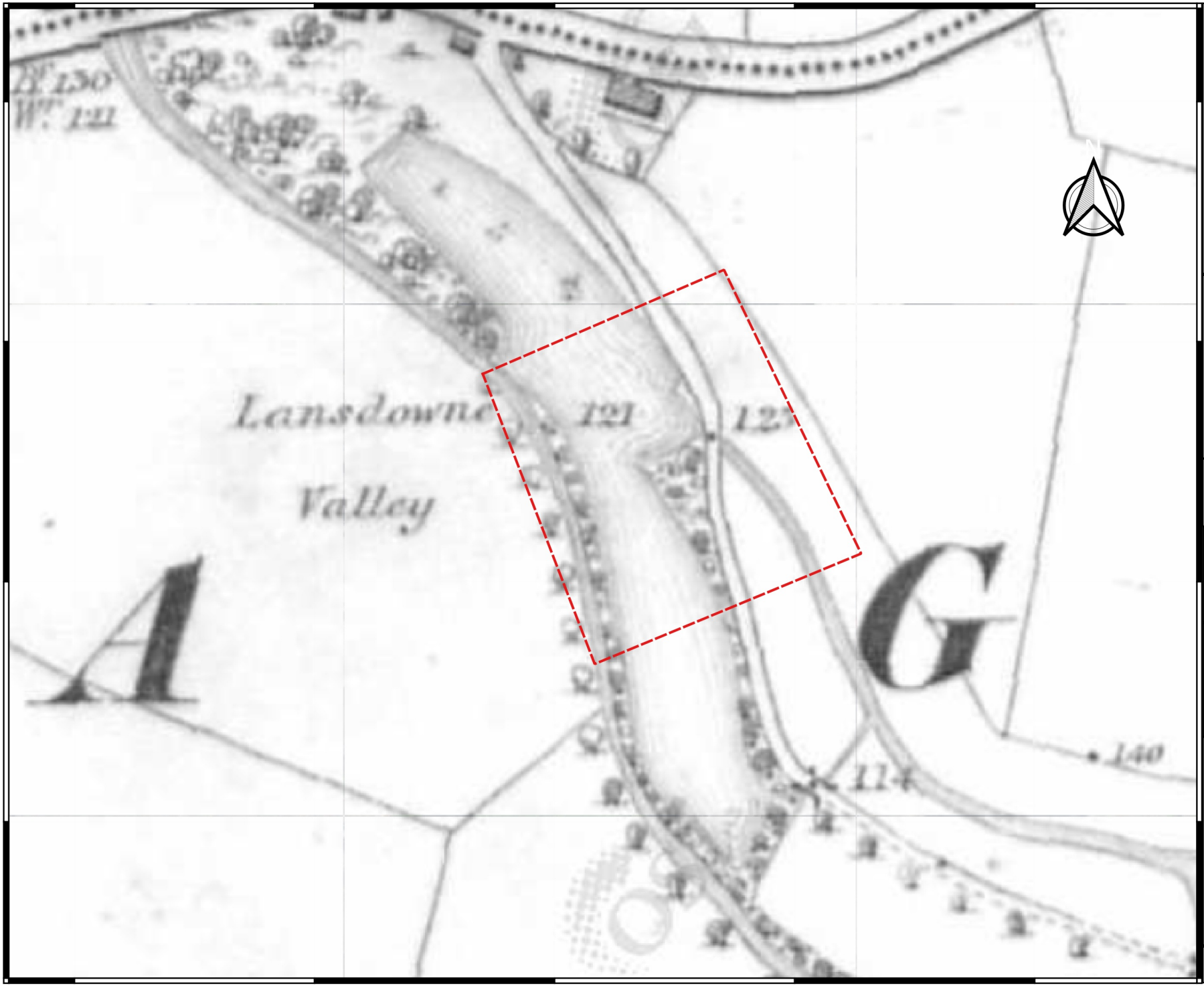
GII Project Reference:
12689-03-23

Drawn By: BS

Date: 13-07-2023

Site Location

Indicative Site Boundary



Indicative Site Location

Client:

BM
BARRETT MAHONY

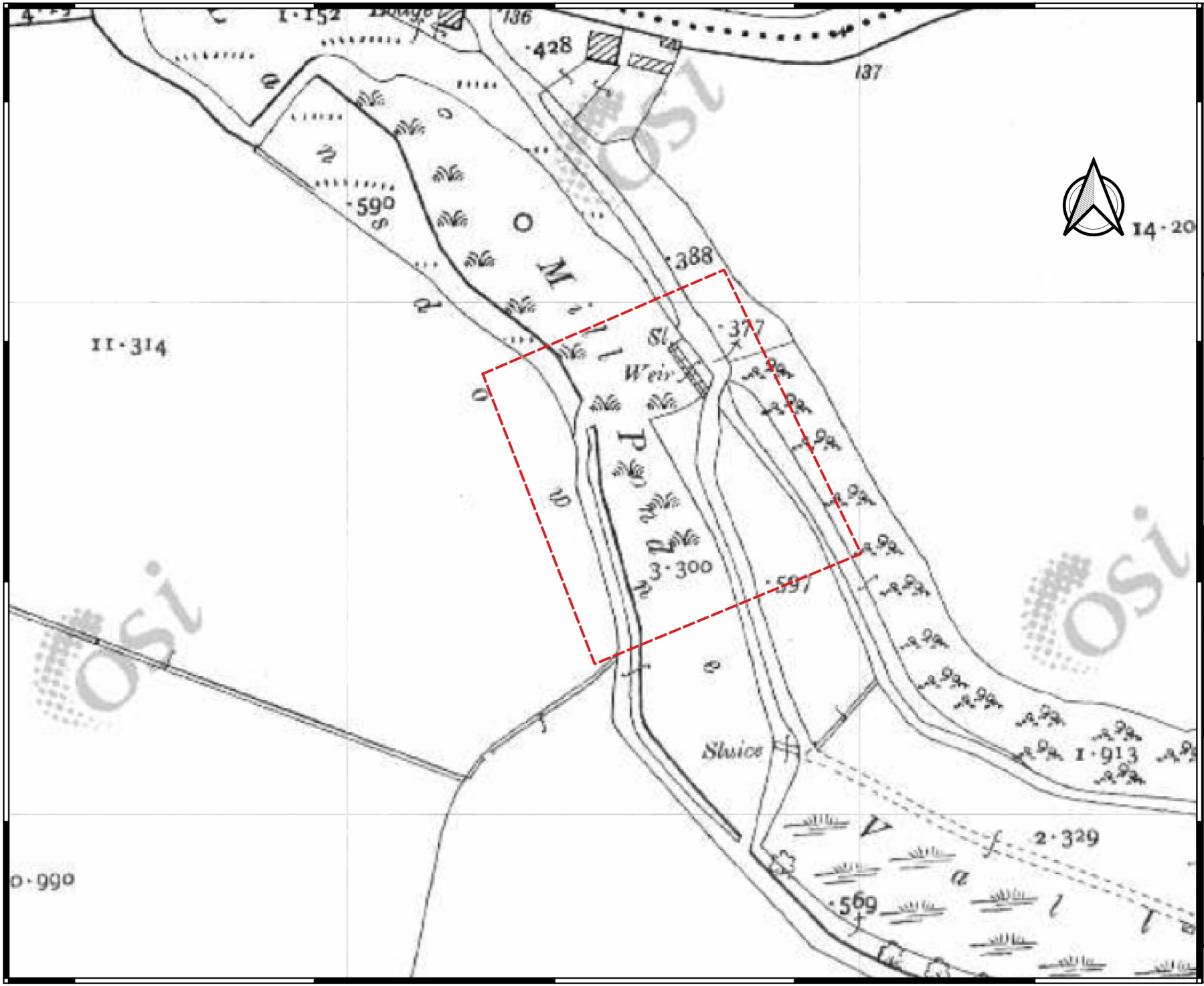
Project Code:
12689-03-23

Project Title:
Gowan Motors

Drawing Title:
Figure 2 OSI 6-Inch Map

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Ground Investigations Ireland Ltd.
Catherinstown House,
Hazelhatch Road,
Newcastle, Co. Dublin
www.gii.ie 01-6015175/5176

Drawn By:	Date:
BS	06-07-2023



Client:

BM
BARRETT MAHONY

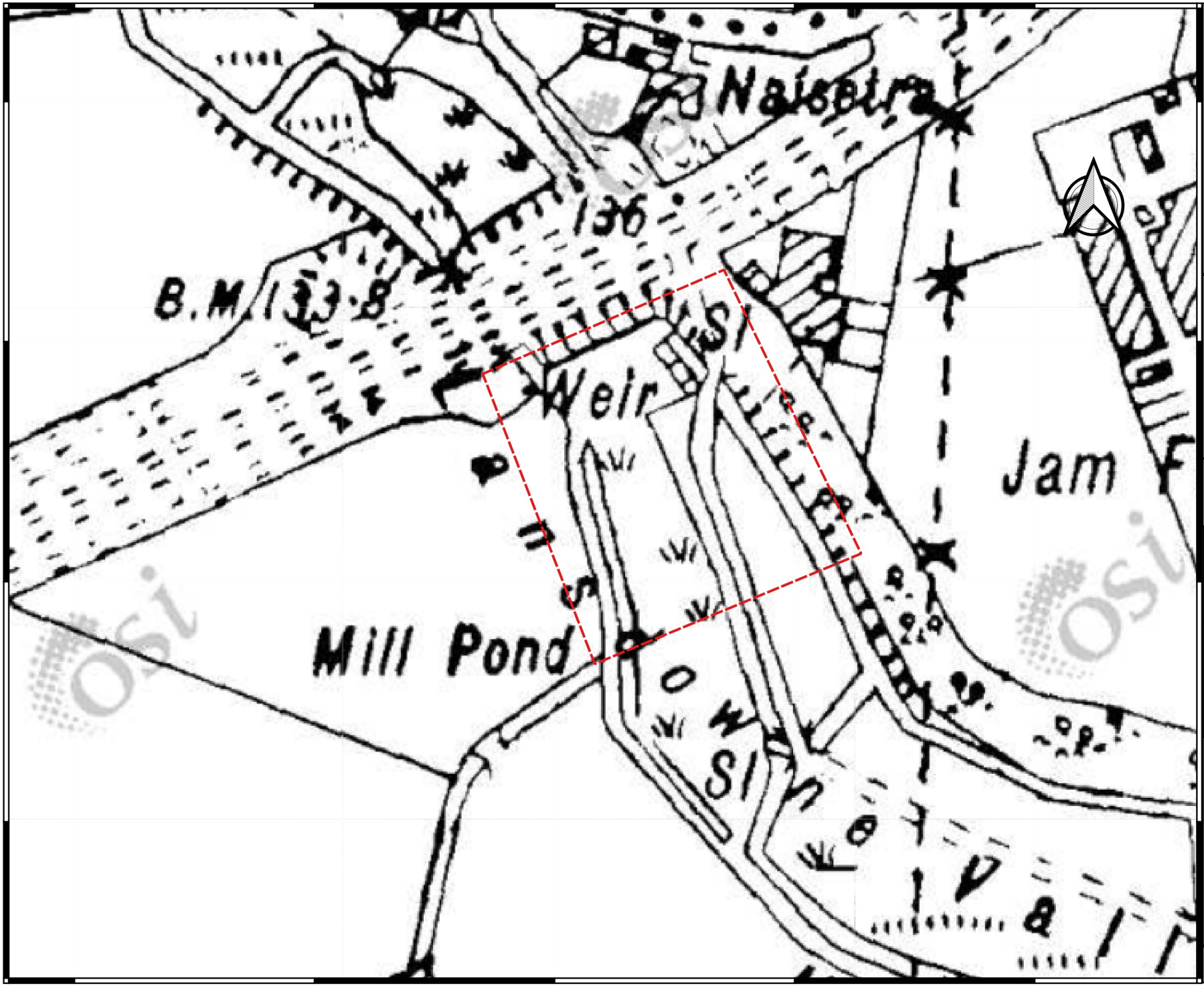
Project Code:
12689-03-23

Project Title:
Gowan Motors

Drawing Title:
Figure 3 OSI 25-Inch Map

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Ground Investigations Ireland Ltd.
Catherinstown House,
Hazelhatch Road,
Newcastle, Co. Dublin
www.gii.ie 01-6015175/5176

Drawn By:	Date:
BS	06-07-2023



Indicative Site Location

Client:

BM
BARRETT MAHONY

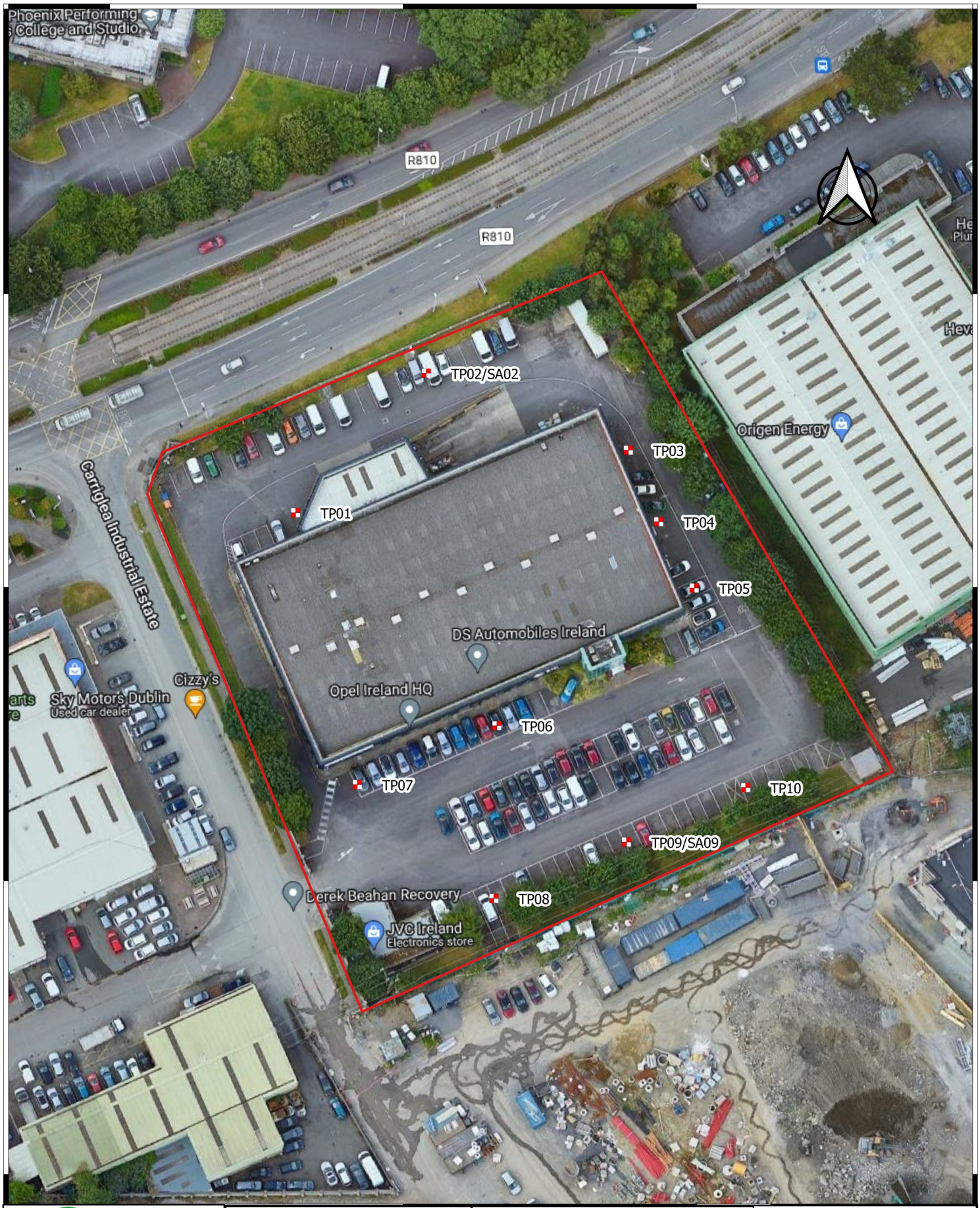
Project Code:
12689-03-23

Project Title:
Gowan Motors

Drawing Title:
Figure 3 OSI Cassini Map

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Ground Investigations Ireland Ltd.
Catherinstown House,
Hazelhatch Road,
Newcastle, Co. Dublin
www.gii.ie 01-6015175/5176

Drawn By:	Date:
BS	06-07-2023



GROUND INVESTIGATIONS IRELAND

Ground Investigations Ireland Ltd.
Catherinstown House,
Hazelhatch Road,
Newcastle, Co. Dublin
www.gii.ie 01-6015175/5176

Client:

BM
BARRETT MAHONY

0 10 20 30 m

Project Title:
Former Gowan House Site

Drawing Title:
Figure 5 Trial Pit Locations

GII Project Reference:
12689-03-23

Drawn By: BS

Date: 06/07/2023

- Site Location
- Indicative Site Boundary
- Trial Pit

APPENDIX 2 – Trial Pit Records

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	SA02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.10m x 0.60m x 3.30m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30)	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill		
					0.40			
					(0.50)	MADE GROUND: Dark brown to black silty sandy gravelly Clay with cobbles and fragments of concrete and plastic.		
0.70-1.60	B1				0.90			
						MADE GROUND: Dark greyish brown silty sandy clayey Gravel with cobbles boulders and fragments of plastic, metal tie straps, tar and wood		
1.90	B2				(2.40)			
3.20	B3				3.30	Complete at 3.30m		

Plan

Remarks

No groundwater encountered.
Spalling sidewalls below 2.50m.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.SA02

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	SA09

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.60m x 1.90m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.50) 0.60	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill with some rootlets		
0.60-1.50	B1				(0.90) 1.50	MADE GROUND: Brown sandy slightly clayey Gravel with some rootlets and subangular to subrounded cobbles, concrete blocks, plastic and metal. Gravel is fine to coarse subangular to subrounded.		
1.70	B2				(0.30) 1.80	Firm to stiff light brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded.		
1.90	B3				(0.10) 1.90	Stiff grey sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded.		
						Complete at 1.90m		

Plan

Remarks

No groundwater encountered.
Some spalling on sidewalls.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP09

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.60m x 0.80m x 2.60m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30) 0.40	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill		
0.60-1.20	B1				(2.20)	MADE GROUND: Dark grey clayey sandy Gravel with cobbles and fragments of red brick and plastic. Gravel is fine to coarse subangular to subrounded.		
1.90	B2							
2.50	B3				2.60	Complete at 2.60m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Obstruction at 2.60m, possible rock or boulders.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP01

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.10m x 0.60m x 3.30m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30)	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill		
					0.40			
					(0.50)	MADE GROUND: Dark brown to black silty sandy gravelly Clay with cobbles and fragments of concrete and plastic.		
0.70-1.60	B1							
					0.90			
						MADE GROUND: Dark greyish brown silty sandy clayey Gravel with cobbles boulders and fragments of plastic, metal tie straps, tar and wood		
1.90	B2							
					(2.40)			
3.20	B3							
					3.30	Complete at 3.30m		

Plan

Remarks

No groundwater encountered.
Spalling sidewalls below 2.50m.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP02

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.60m x 0.80m x 2.70m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.70)	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill with fragmnets of metal rebar and plastic		
0.80-1.20	B1				0.80 (0.40) 1.20	MADE GROUND: Brown slightly sandy silty clayey Gravel with cobbles. Gravel is fine to coarse subangular to subrounded.		
1.50	B2				(0.50) 1.70	MADE GROUND: Brown mottled black gravelly Clay. Gravel is fine to coarse subangular to subrounded.		
2.40	B3				(1.00)	MADE GROUND: Brown slightly gravelly Clay with wood and plastic pipe fragments. Gravel is fine to coarse subangular to subrounded.		
2.70	B4				2.70	Complete at 2.70m		

Plan

Remarks

No groundwater encountered.
Slight spalling on sidewalls.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP03

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP04

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.00m x 0.70m x 3.40m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
						MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill		
					(0.60) 0.70			
						MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill with fragments of tar, red brick and large concrete block pillars with metal rebar and wire.		
1.10	B1				(0.80)			
1.50	B2				1.50	MADE GROUND: Light brown silty sandy gravelly Clay with subangular to subrounded cobbles and fragments of red brick, plastic and tar. Gravel is fine to coarse subangular to subrounded.		
1.90	B3				(0.40) 1.90			
						MADE GROUND: Yellowish brown mottled black slightly silty slightly sandy gravelly Clay with occasional subrounded cobbles and fragments of red brick, plastic and tar. Gravel is fine to coarse subangular to subrounded.		
3.20	B4				(1.50) 3.40			
						Complete at 3.40m		

Plan

Remarks

No groundwater encountered.
Some spalling on sidewalls.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP04

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP05

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 3.00m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 19/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30) 0.40	MADE GROUND: Grey to dark grey slightly clayey slightly sandy Gravel with occasional subangular cobbles and fragments of brick, plastic and concrete. Gravel is fine to coarse angular to subangular.		
0.50	B1					MADE GROUND: Light brown to greyish brown sandy slightly gravelly Clay with roots and many subangular to subrounded cobbles and fragments of brick, metal and glass.		
1.00	B2				(1.40)			
					1.80	Stiff grey brown to brown slightly sandy slightly gravelly CLAY with many subangular cobbles and boulders.		
2.00	B3				(1.20)			
3.00	B4				3.00	Complete at 3.00m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP05

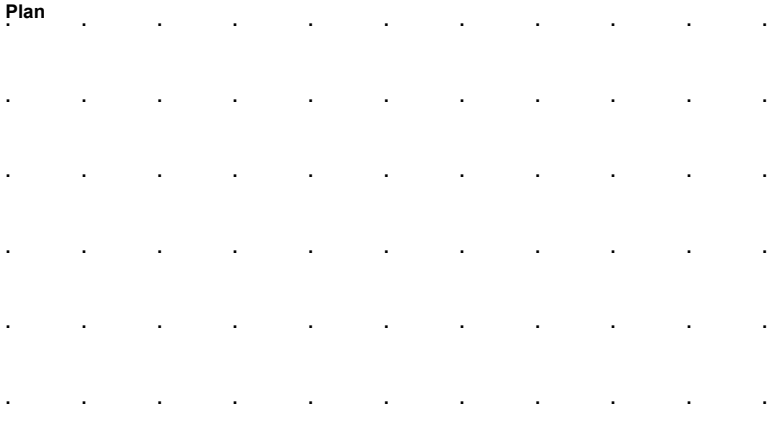
Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP06

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.40m x 0.80m x 0.90m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 19/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30) 0.40	MADE GROUND: Grey to dark grey slightly clayey slightly sandy fine to coarse angular to subangular Gravel with many subangular cobbles and some fragments of brick.		
0.50	B1				(0.50) 0.90	MADE GROUND: Grey to brown slightly clayey gravelly Sand with occasional subangular cobbles and some fragments of brick, plastic, metal and concrete. Concrete presenting along pit sidewalls at 0.65m.		
						Complete at 0.90m		

Plan



Remarks

No groundwater encountered.
Trial pit stable.
Trial pit terminated due to services at 0.90m.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP06

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP07

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.40m x 0.70m x 3.00m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 19/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30) 0.40	MADE GROUND: Grey to dark grey slightly clayey slightly sandy fine to coarse angular to subangular Gravel with occasional subangular cobbles and some fragments of brick, wood and plastic.		
0.50	B1				(0.45) 0.85	MADE GROUND: Grey to brown slightly sandy slightly gravelly CLAY with occasional subangular cobbles and fragments of brick and plastic.		
1.00	B2				(1.25) 2.10	Stiff brown slightly sandy slightly gravelly CLAY with many subangular to subrounded cobbles.		
2.00	B3				(0.90) 3.00	Stiff dark brown mottled brown slightly sandy slightly gravelly CLAY with many angular to subangular cobbles and boulders.		
3.00	B4					Complete at 3.00m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP07

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP08

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.4m x 0.70m x 2.80m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 19/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.30) 0.40	MADE GROUND: Dark grey slightly clayey slightly sandy fine to coarse angular to subangular Gravel with many subangular cobbles.		
0.50	B1					MADE GROUND: Brown to grey stiff slight;y sandy gravelly CLAY with frequent subangular cobbles and fragments of brick, metal, concrete and plastic.		
1.00	B2				(1.30)			
					1.70			
2.00	B3					MADE GROUND: Grey mottled brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles and fragments of brick, glass and plastic. Large concrete boulder at 2.50m.		
					(1.10)			
					2.80			
2.80	B4					Complete at 2.80m		

Plan

Remarks

No groundwater encountered.
Trial pit collapsing from 1.70m.
Trial pit terminated due to sidewall collapse.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP08

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP09

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.60m x 1.90m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 20/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.50) 0.60	MADE GROUND: Grey fine to coarse subangular to subrounded crushed rock fill with some rootlets		
0.60-1.50	B1				(0.90) 1.50	MADE GROUND: Brown sandy slightly clayey Gravel with some rootlets and subangular to subrounded cobbles, concrete blocks, plastic and metal. Gravel is fine to coarse subangular to subrounded.		
1.70	B2				(0.30) 1.80	Firm to stiff light brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded.		
1.90	B3				(0.10) 1.90	Stiff grey sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded.		
						Complete at 1.90m		

Plan

Remarks

No groundwater encountered.
Some spalling on sidewalls.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP09

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Gowan Motors Site Naas Road	TP10

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.60m x 0.70m x 2.00m (L x W x D)		Hollybrook Homes Ltd	12689-03-23
	Location	**Dates** 19/04/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TARMAC		
					(0.60)	MADE GROUND: Grey to black slightly clayey slightly sandy fine to coarse angular to subangular Gravel with occasional subangular cobbles, roots and fragments of brick, metal, cloth, ceramic and concrete.		
0.50	B1				0.70			
1.00	B2				(0.80)	MADE GROUND: Grey to brown slightly sandy slightly gravelly CLAY with occasional subangular cobbles and fragments of brick, cloth, ceramic and plastic. Black 100mm plastic pipe with gravel surround located at edge of trial pit at 0.80m.		
					1.50			
					(0.50)	Very stiff black slightly sandy slightly gravelly CLAY with occasional subrounded cobbles.		
2.00	B3				2.00			
						Complete at 2.00m		

Plan

Remarks

No groundwater encountered.
Trial pit stable.
Trial pit terminated due to obstruction at 2.00m.
Trial pit backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	AM	12689-03-23.TP10

Gowan Motors Site Naas Road Trial Pits

TP01

TP01

Gowan Motors Site Naas Road Trial Pits

TP01

TP02

Gowan Motors Site Naas Road Trial Pits

TP02

TP02

Gowan Motors Site Naas Road Trial Pits

TP03

TP03

Gowan Motors Site Naas Road Trial Pits

TP03

TP04

Gowan Motors Site Naas Road Trial Pits

TP04

TP04

Gowan Motors Site Naas Road Trial Pits

TP05

TP05

Gowan Motors Site Naas Road Trial Pits

TP05

TP06

Gowan Motors Site Naas Road Trial Pits

TP06

TP06

Gowan Motors Site Naas Road Trial Pits

TP07

TP07

Gowan Motors Site Naas Road Trial Pits

TP07

TP08

Gowan Motors Site Naas Road Trial Pits

TP08

TP08

Gowan Motors Site Naas Road Trial Pits

TP09

TP09

Gowan Motors Site Naas Road Trial Pits

TP09

TP10

Gowan Motors Site Naas Road Trial Pits

TP10

TP10

APPENDIX 3 – Borehole Records

Ground Investigations Ireland Ltd
www.gii.ie

Site Gowan Motors Site Naas Road			**Borehole Number** BH01
Machine : Dando 2000 and Beretta T44 **Method :** Cable Percussion with rotary core follow-on	**Casing Diameter** 200mm cased to 7.60m 100mm cased to 12.40m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 08/05/2023-09/05/2023	**Engineer** Barrett Mahony	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						(0.20) 0.20	TARMACADAM			
0.50	B1						MADE GROUND: Dark brownish grey slightly sandy gravelly Clay with low rootlets, red brick, concrete and metal fragments.			
1.00-1.45 1.00	SPT(C) N=8 B2			1,1/2,2,2,2						
2.00-2.45 2.00	SPT(C) N=9 B3			1,2/2,2,2,3						
3.00-3.45 3.00	SPT(C) N=9 B4			2,1/2,2,3,2		(5.80)				
4.00-4.45 4.00	SPT(C) N=8 B5			2,2/2,2,2,2						
5.00-5.45 5.00	SPT(C) N=10 B6			2,3/2,3,3,2						
6.00-6.45 6.00	SPT(C) N=13 B7			2,3/3,3,4,3		6.00	POSSIBLE MADE GROUND: Brown slightly gravelly Clay.			
7.00-7.45 7.00	SPT(C) N=50 B8			2,4/10,40		(1.30)				
	TCR / **SCR** / **RQD** / **FI**					7.30	Recovery consists of: Brownish grey to dark grey slightly gravelly CLAY. Gravels are medium to coarse subangular to subrounded. (Very stiff)			
7.60	45					(0.83)				
8.13	100 / 6 / 0					8.13	Very strong to strong dark grey thinly laminated fine grained argillaceous LIMESTONE, slightly weathered interbedded with moderately weak to weak dark grey thinly bedded fine grained calcareous MUDSTONE, highly weathered to destructed with occasional calcite veining and rare pyrite mineralisation.			
8.30	83 / 45 / 19 / 20						8.13m to 9.80m BGL: Sequence consists of closely spaced fractures, dipping 20-30 degrees, planar smooth with occasional clay smearing.			
9.80							9.70m to 9.80m BGL: Clay band			

Remarks
Cable percussive techniques carried out to 7.60m BGL with rotary core follow-on to 12.40m BGL.
Standpipe installed in borehole upon completion.
Slotted standpipe with gravel surround from 12.40m BGL to 1.0m BGL, plain standpipe with gravel surround from 1.0m BGL to GL complete with flush cover.
Chiselling from 7.30m to 7.60m for 1 hour.

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.BH01

Ground Investigations Ireland Ltd
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Site Gowan Motors Site Naas Road			**Borehole Number** BH01
Machine : Dando 2000 and Beretta T44 **Flush :** Water **Core Dia :** 96 mm **Method :** Cable Percussion with rotary core follow-on	**Casing Diameter** 200mm cased to 7.60m 100mm cased to 12.40m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 08/05/2023-09/05/2023	**Engineer** Barrett Mahony	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	100	78	39	11			(4.27)	9.80m to 11.0m BGL: Sequence consists of medium to closley spaced fractures, dipping 0-10 degrees, planar smooth with occasional clay smearing.			
11.00				NI							
11.30 11.35	100	51	63	7				11.0m to 11.35m BGL: Non-intact with clay bands 11.67m to 11.74m BGL: Clay band 11.94m BGL: Pyrite mineralisation 11.0m to 12.40m BGL: Sequence contains 2 fracture sets: F1: Medium to closley spaced fractures, dipping 0-10 degrees, planar smooth with occasional clay smearing. F2: Medium to closely spaced fractures, dipping 60-70 degrees, planar smooth with occasional clay smearing.			
12.40							12.40	Complete at 12.40m			

Remarks

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.BH01

Ground Investigations Ireland Ltd
www.gii.ie

Site Gowan Motors Site Naas Road			**Borehole Number** BH02
Machine : Dando 2000 **Method :** Cable Cable Percussion	**Casing Diameter** 200mm cased to 6.40m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 09/05/2023	**Engineer** Barrett Mahony	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.20) 0.20	TARMACADAM		
0.50	B1					(0.60)	MADE GROUND: Dark grey clayey slightly sandy subangular to angular fine to coarse Gravel.		
1.00-1.45 1.00	SPT(C) N=7 B2			1,1/1,2,2,2		0.80	MADE GROUND: Dark grey to greyish brown sandy gravelly Clay with low plastic concrete and red brick fragments. Gravel is subrounded to angular fine to coarse.		
2.00-2.45 2.00	SPT(C) N=8 B3			1,2/2,2,2,2		(2.20)			
3.00-3.45 3.00	SPT(C) N=8 B4			1,1/1,2,3,2		3.00	MADE GROUND: Brown sandy gravelly Clay with low subangular cobbles, plastic and red brick fragments. Gravel is rounded to angular fine to coarse.		
4.00-4.45 4.00	SPT(C) N=10 B5			2,2/2,3,3,2		(2.80)			▼1
5.00-5.45 5.00	SPT(C) N=8 B6			2,3/2,2,2,2 Water strike(1) at 5.20m, rose to 4.70m in 20 mins.					▽1
6.00-6.45 6.00	SPT(C) N=50 B7			14,3/9,10,31		5.80 (0.60) 6.40	POSSIBLE MADE GROUND: Greyish brown slightly sandy gravelly Clay with low subrounded cobbles. Gravel is rounded to angular fine to coarse. Complete at 6.40m		

Remarks
Cable percussive techniques carried out to 6.40m BGL.
Groundwater encountered at 5.20m BGL.
BH02 carried out adjacent to RC02.
Chiselling from 6.40m to 6.70m for 1 hour.

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.BH01

Ground Investigations Ireland Ltd
www.gii.ie

Site Gowan Motors Site Naas Road			**Borehole Number** RC02
Machine : Beretta T44 **Flush :** Water **Core Dia :** 96 mm **Method :** Rotary Cored	**Casing Diameter** 100mm cased to 14.90m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 08/05/2023	**Engineer** Barrett Mahony	**Sheet** 1/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00	20						(2.30)	Drillers notes: Tarmac, gravelly Fill and Concrete. Recovery consists of: MADE GROUND: Dark grey slightly sandy very gravelly Clay with low cobbles, tarmac and concrete. Gravel is subangular to angular fine to coarse. (RC02 carried out adjacent to BH02, see BH02 for further description)			
2.30	12						2.30	Drillers notes: Gravelly Fill. Recovery consists of: MADE GROUND: Brown slightly sandy gravelly Clay with concrete and styrofoam. Gravel is subangular to angular fine to coarse. (RC02 carried out adjacent to BH02, see BH02 for further description)			
3.80	5						(4.10)				
5.30	10										
6.80	8						6.40	Drillers notes: Gravelly Fill. Recovery consists of: MADE GROUND: Brown slightly sandy gravelly Clay with concrete and styrofoam. Gravel is subangular to angular fine to coarse.			
8.30	35						(1.90)	Drillers notes: Brownish grey boulder Clay. Recovery consists of: Greyish brown slightly sandy gravelly CLAY with medium cobbles. Gravel is subangular to subrounded fine to coarse.			
9.80 9.80-10.25					18,17/18,22,10 SPT(C) N=50		8.30 (1.50) 9.80	Drillers notes: Black boulder Clay. Recovery			

Remarks
Rotary coring techniques carried out to 14.90m BGL.
RC02 carried out adjacent to BH02.
Standpipe installed in borehole upon completion.
Slotted standpipe with gravel surround from 14.90m BGL to 1.0m BGL, plain standpipe with gravel surround from 1.0m BGL to GL complete with flush cover.

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.RC02

Ground Investigations Ireland Ltd
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Site Gowan Motors Site Naas Road			**Borehole Number** RC02
Machine : Beretta T44 **Flush :** Water **Core Dia :** 96 mm **Method :** Rotary Cored	**Casing Diameter** 100mm cased to 14.90m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 08/05/2023	**Engineer** Barrett Mahony	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	57						(1.85)	consists of: Dark grey slightly sandy gravelly CLAY with medium cobbles. Gravel is subangular to subrounded fine to coarse. (Very stiff)			
11.30 11.30-11.75	74				19,21/50 SPT(C) N=50						
11.65	100	65	37	20			11.65	Strong dark grey thinly laminated fine grained argillaceous LIMESTONE, slightly to partially weathered interbedded with moderately weak to weak dark grey thinly bedded fine grained calcareous MUDSTONE, moderately weathered to destructed with occasional calcite veining. 11.78m to 11.80m BGL: Clay band 11.65m to 12.80m BGL: Sequence consists of 2 fracture sets: F1: Very close to closely spaced fractures, dipping 05-15 degrees, planar smooth with occasional clay smearing. F2: Medium to closely spaced fractures, dipping 70-80 degrees, planar smooth with occasional clay smearing. 12.62m to 12.66m BGL: Clay band 12.80m to 13.08m BGL: Clay band			
12.80				NI							
13.20	93	54	36	9			(3.25)	13.20m to 14.90m BGL: Sequence consists of 2 fracture sets: F1: Very close to closely spaced fractures, dipping 05-15 degrees, planar smooth with occasional clay smearing. F2: Medium to closely spaced fractures, dipping 70-80 degrees, planar smooth with occasional clay smearing. 14.12m to 14.44m BGL: Clay band			
14.30	100	65	17	13							
14.90							14.90	Complete at 14.90m			

Remarks

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.RC02

Ground Investigations Ireland Ltd
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Site Gowan Motors Site Naas Road			**Borehole Number** BH03
Machine : Dando 2000 and Beretta T44 **Method :** Cable Percussion with rotary core follow-on	**Casing Diameter** 200mm cased to 10.00m 100mm cased to 16.60m	**Ground Level (mOD)**	**Client** Hollybrook Homes Ltd	**Job Number** 12689-03-23
	Location	**Dates** 08/05/2023	**Engineer** Barrett Mahony	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.20) 0.20	TARMACADAM		
0.50	B1						MADE GROUND: Dark grey slightly clayey slightly sandy angular to subangular fine to coarse Gravel.		
1.00-1.45 1.00	SPT(C) N=8 B2			1,2/2,2,2,2		(2.10)			▼1
2.00-2.45 2.00	SPT(C) N=9 B3			2,2/2,3,2,2		2.30	MADE GROUND: Brown sandy very gravelly CLAY with low red brick fragments.		
				Water strike(1) at 2.70m, rose to 1.50m in 20 mins.		(0.70)			▽1
3.00 3.00-3.45	B4 SPT(C) N=11			2,3/4,2,2,3		3.00	POSSIBLE MADE GROUND: Brown sandy gravelly CLAY with low cobbles. Gravels are subangular to rounded fine to coarse.		
4.00-4.45 4.00	SPT(C) N=10 B5			2,3/3,2,2,3		(3.00)			
5.00-5.45 5.00	SPT(C) N=12 B6			2,3/3,3,3,3					
6.00-6.45 6.00	SPT(C) N=10 B7			2,2/2,2,3,3		6.00	Firm dark grey slightly sandy slightly gravelly CLAY/SILT. Gravels are subangular to rounded fine to coarse.		
7.00-7.45 7.00	SPT(C) N=11 B8			2,3/3,3,3,2		(2.00)			
8.00-8.45 8.00	SPT(C) N=11 B9			2,2/3,3,2,3		8.00	Medium dense dark grey clayey slightly sandy subangular to rounded fine to coarse GRAVEL with high subrounded to subangular cobbles.		
						(1.00)			
9.00-9.45 9.00	SPT(C) N=50 B10			8,11/13,17,19,1		9.00	Dense dark grey clayey slightly sandy subangular to rounded fine to coarse GRAVEL with high subrounded to subangular cobbles.		
						(1.00)			
10.00									

Remarks
Cable percussive techniques carried out to 7.60m BGL with rotary core follow-on to 16.6m BGL.
Groundwater encountered at 2.70m BGL.

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.BH01

Ground Investigations Ireland Ltd
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Site Gowan Motors Site Naas Road			**Borehole Number** BH03
Machine : Dando 2000 and Beretta T44 **Flush :** Water **Core Dia :** 96 mm **Method :** Cable Percussion with rotary core follow-on	**Casing Diameter** 200mm cased to 10.00m 100mm cased to 16.60m **Location**	**Ground Level (mOD)** **Dates** 08/05/2023	**Client** Hollybrook Homes Ltd **Engineer** Barrett Mahony	**Job Number** 12689-03-23 **Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.00					B11		10.00			
10.00-10.45	28				SPT(C) N=50 9,14/15,19,16			Driller Notes Black Boulder Clay. Recovery consists of: Dark grey clayey slightly sandy subrounded to angular fine to coarse Gravel with low cobbles (Very Stiff).		
11.30-11.45					10,19/50 SPT(C) 50/0		(2.80)			
11.30	56									
12.80-12.88					50/50 SPT(C) 50*/75 50/0		12.80			
12.80	49						(0.74)	Recovery consists of: Dark grey slightly sandy gravelly CLAY. Gravels are subangular to angular fine to coarse. (Very stiff)		
13.54	100	51	18	15			13.54	Strong dark grey thinly laminated fine grained argillaceous LIMESTONE, moderately weathered interbedded with moderately weak dark grey thinly bedded fine grained calcareous MUDSTONE, highly to distinctly weathered with occasional calcite veining. 13.54m to 14.59m BGL: Sequence consists of closely spaced fractures, dipping 20-40 degrees, planar smooth.		
14.30										
14.59				NI			(2.29)	14.49m to 14.80m BGL: Non-intact		
14.80	100	37	27	13				14.94m to 14.97m BGL: Clay band 14.80m to 15.80m BGL: Sequence consists of 2 fracture sets: F1: Medium to closely spaced fractures, dipping 05-15 degrees, planar smooth with occasional clay smearing. F2: Medium spaced fractures, dipping 80-90 degrees, planar to undulating smooth with occasional clay smearing.		
15.80	73	36	8	20			15.83 (0.77)	Weak dark grey thinly bedded fine grained calcareous MUDSTONE, highly weathered to destructed with occasional calcite veining and rare pyrite mineralisation. 15.80m to 16.60m BGL: Sequence consists of very close to closely spaced fractures, dipping 0-10 degrees, , planar smooth with occasional clay smearing. 16.15m BGL: Pyrite mineralisation 16.20m to 16.24m BGL: Clay band		
16.60							16.60	Complete at 16.60m		

Remarks

Scale (approx)	Logged By
1:50	LM

Figure No. 12689-03-23.BH01

Gowan Motors Site Naas Road Rotary Core Photos

BH01

BH01

Gowan Motors Site Naas Road Rotary Core Photos

RC02

RC02

Gowan Motors Site Naas Road Rotary Core Photos

BH03

BH03

APPENDIX 4 – Laboratory Testing

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Attention :	Stephen Kealy
Date :	11th July, 2023
Your reference :	12689-03-23
Our reference :	Test Report 23/6708 Batch 1
Location :	Gowan Motors Site Naas Road
Date samples received :	27th April, 2023
Status :	Final Report
Issue :	2

Nineteen samples were received for analysis on 27th April, 2023 of which nineteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05			
Depth	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023			
Antimony	<1	<1	1	<1	1	3	<1	4	2	2	<1	mg/kg	TM30/PM15
Arsenic #	5.6	6.6	9.7	5.1	8.2	16.5	7.7	20.8	10.6	15.6	<0.5	mg/kg	TM30/PM15
Barium #	88	117	86	59	55	110	84	112	119	126	<1	mg/kg	TM30/PM15
Cadmium #	1.2	0.9	0.4	0.6	1.5	2.8	0.9	2.1	1.2	2.0	<0.1	mg/kg	TM30/PM15
Chromium #	21.7	26.7	10.2	22.4	15.1	39.6	33.0	50.4	42.3	33.9	<0.5	mg/kg	TM30/PM15
Copper #	18	21	23	16	32	44	27	47	30	37	<1	mg/kg	TM30/PM15
Lead #	19	22	24	16	19	48	20	37	69	35	<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #	1.6	2.2	1.8	2.6	2.3	4.2	2.2	5.0	3.1	2.6	<0.1	mg/kg	TM30/PM15
Nickel #	24.1	29.8	37.3	23.6	43.0	68.2	29.0	68.2	30.3	61.9	<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	1	1	1	2	<1	3	1	1	<1	mg/kg	TM30/PM15
Zinc #	138	125	62	65	118	185	92	157	121	134	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	0.19	0.36	0.09	<0.04	0.04	<0.04	0.17	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.05	0.07	<0.03	<0.03	<0.03	<0.03	0.07	<0.03	0.07	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.23	0.36	0.14	0.04	0.07	0.06	0.28	<0.03	1.25	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	0.48	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.15	0.20	0.09	<0.03	0.04	0.13	0.30	0.05	3.94	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	0.14	0.20	0.09	<0.03	0.04	0.11	0.30	0.05	3.09	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	0.09	0.08	<0.06	1.83	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	0.09	0.08	<0.02	<0.02	<0.02	0.08	0.08	0.04	1.69	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	0.10	0.13	<0.07	2.57	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	0.08	<0.04	1.43	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.09	<0.04	0.89	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.23	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.83	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.08	<0.04	0.15	<0.04	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	0.25	<0.22	<0.22	<0.22	0.29	0.60	<0.22	9.66	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total	0.85	1.32	<0.64	<0.64	<0.64	<0.64	1.72	<0.64	18.45	<0.64	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.09	<0.05	1.85	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.04	<0.02	0.72	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	88	88	87	85	83	80	87	74	85	83	<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	826	971	50	155	<30	<30	216	<30	227	<30	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05			
Depth	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023			
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	6.2	6.5	1.2	2.3	<0.2	<0.2	0.8	<0.2	1.9	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	86	98	8	10	<4	<4	9	<4	10	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	278	289	25	23	<7	<7	45	<7	41	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	409	500	16	100	<7	<7	145	<7	152	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	47	77	<7	20	<7	<7	16	<7	22	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_CU_1D_AL)	826	971	50	155	<26	<26	216	<26	227	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_1D_AL)	432	457	32	51	<10	<10	71	<10	109	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_1D_AL)	243	328	<10	76	<10	<10	91	<10	124	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	2.2	0.7	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	31	32	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	100	109	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	306	484	<7	154	<7	<7	82	<7	173	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	66	120	<7	62	<7	<7	28	<7	39	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_CU_1D_AR)	505	746	<26	216	<26	<26	110	<26	212	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	1331	1717	<52	371	<52	<52	326	<52	439	<52	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR) #	<0.1 SV	<0.1	<0.1 SV	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_1D_AR)	177	187	<10	<10	<10	<10	<10	<10	15	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_1D_AR)	217	359	<10	132	<10	<10	64	<10	121	<10	<10	mg/kg	TM5/PM8/PM16
MTBE #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Benzene #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Toluene #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
Ethylbenzene #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
m/p-Xylene #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
o-Xylene #	<5 SV	<5	<5 SV	<5 SV	<5	<5	<5	<5	<5 SV	<5	<5	ug/kg	TM36/PM12
PCB 28 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 101 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 180 #	<25 AA	<25 AA	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
Total 7 PCBs #	<175 AA	<175 AA	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05			
Depth	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023			
Natural Moisture Content	17.4	16.9	15.7	9.0	10.1	25.7	12.4	26.9	13.5	20.1	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	14.8	14.4	13.6	8.2	9.2	20.4	11.1	21.2	11.9	16.8	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	NDP	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.5239	-	-	-	-	-	-	-	-	0.0357	<0.0015	g/l	TM38/PM20
Chromium III	21.7	NDP	10.2	22.4	15.1	39.6	33.0	50.4	42.3	33.9	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.68	0.41	0.58	0.42	0.60	1.30	0.59	0.87	1.08	0.55	<0.02	%	TM21/PM24
Acid Reserve	NDP	NDP	-	-	-	-	-	-	-	-	<0.000	gNaOH/100g	TM160/PM110
Alkali Reserve	0.007	0.024	-	-	-	-	-	-	-	-	<0.000	gNaOH/100g	TM160/PM110
pH #	11.54	11.50	8.14	8.10	8.57	7.82	10.18	7.85	8.30	8.40	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1064	0.1109	0.1049	0.1064	0.099	0.1171	0.1022	0.1163	0.1053	0.1061		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73-76		LOD/LOR	Units	Method No.
Sample ID	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10				
Depth	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00				
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T				
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023				
Antimony	7	2	2	3	12	2	1	2	2		<1	mg/kg	TM30/PM15
Arsenic #	8.7	10.8	9.7	18.0	15.5	10.8	7.8	13.8	16.4		<0.5	mg/kg	TM30/PM15
Barium #	84	104	98	142	144	83	136	143	124		<1	mg/kg	TM30/PM15
Cadmium #	1.2	1.7	2.0	2.6	1.6	1.6	1.2	0.8	3.8		<0.1	mg/kg	TM30/PM15
Chromium #	40.4	31.5	40.3	53.1	60.7	42.7	25.7	55.4	45.9		<0.5	mg/kg	TM30/PM15
Copper #	28	31	30	48	63	36	26	40	46		<1	mg/kg	TM30/PM15
Lead #	71	43	32	55	202	76	22	196	84		<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	0.1	0.2	0.2	0.2	<0.1	<0.1	<0.1		<0.1	mg/kg	TM30/PM15
Molybdenum #	3.1	3.9	3.6	5.6	4.4	1.9	2.5	3.4	4.7		<0.1	mg/kg	TM30/PM15
Nickel #	25.3	37.2	37.1	67.9	41.2	33.3	38.5	32.8	57.4		<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	1	2	1	<1	1	1	1		<1	mg/kg	TM30/PM15
Zinc #	96	113	111	148	147	123	107	188	369		<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	0.11	0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	0.17	<0.03	<0.03	<0.03		<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	0.08	<0.04	<0.04	<0.04		<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.24	0.07	0.09	0.24	0.19	0.54	0.09	0.14	0.08		<0.03	mg/kg	TM4/PM8
Anthracene #	0.08	<0.04	<0.04	0.06	0.05	0.17	<0.04	0.05	<0.04		<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.34	0.12	0.14	0.42	0.31	0.90	0.14	0.33	0.12		<0.03	mg/kg	TM4/PM8
Pyrene #	0.33	0.11	0.12	0.39	0.28	0.88	0.13	0.30	0.12		<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.18	0.09	0.12	0.26	0.20	0.65	0.10	0.28	0.09		<0.06	mg/kg	TM4/PM8
Chrysene #	0.17	0.08	0.08	0.26	0.21	0.62	0.10	0.24	0.08		<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.29	0.12	0.13	0.45	0.41	1.50	0.18	0.46	0.15		<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.17	0.07	0.08	0.27	0.25	1.00	0.10	0.26	0.09		<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.12	<0.04	0.06	0.19	0.21	0.71	0.08	0.20	0.06		<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	0.06	0.12	<0.04	0.05	<0.04		<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.12	0.05	0.06	0.19	0.23	0.71	0.08	0.19	0.07		<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	0.15	<0.04	0.05	<0.04		<0.04	mg/kg	TM4/PM8
PAH 6 Total #	1.04	0.36	0.47	1.52	1.41	4.82	0.58	1.44	0.49		<0.22	mg/kg	TM4/PM8
PAH 17 Total	2.04	0.71	0.88	2.73	2.40	8.31	1.04	2.55	0.86		<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.21	0.09	0.09	0.32	0.30	1.08	0.13	0.33	0.11		<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.08	0.03	0.04	0.13	0.11	0.42	0.05	0.13	0.04		<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	88	84	85	85	88	88	114	88	90		<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	165	87	47	<30	<30	111	215	59	45		<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

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Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73-76		LOD/LOR	Units	Method No.
Sample ID	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10				
Depth	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00				
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T				
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023				
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	6	5	<4	<4	<4	<4	<4	<4	<4		<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	27	29	10	<7	<7	16	25	<7	<7		<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	120	53	37	<7	<7	86	158	47	45		<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	12	<7	<7	<7	<7	9	32	12	<7		<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH+HS_CU_1D_AL)	165	87	47	<26	<26	111	215	59	45		<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10 (HS_1D_AL)	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>C10-C25 (EH_1D_AL)	88	33	<10	<10	<10	42	44	<10	<10		<10	mg/kg	TM5/PM8/PM16
>C25-C35 (EH_1D_AL)	105	27	47	<10	<10	75	132	37	34		<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	<4	<4	<4	<4	<4	<4	<4	<4	<4		<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	<7	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	73	75	39	<7	83	90	76	114	<7		<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	25	38	9	<7	31	29	18	39	<7		<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH+HS_CU_1D_AR)	98	113	48	<26	114	119	94	153	<26		<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total)	263	200	95	<52	114	230	309	212	<52		<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 (HS_1D_AR) #	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1 SV	<0.1		<0.1	mg/kg	TM36/PM12
>EC10-EC25 (EH_1D_AR)	<10	<10	<10	<10	<10	16	<10	18	<10		<10	mg/kg	TM5/PM8/PM16
>EC25-EC35 (EH_1D_AR)	70	60	33	<10	58	78	55	113	<10		<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
Benzene #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
Toluene #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
m/p-Xylene #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
o-Xylene #	<5	<5 SV	<5	<5 SV	<5	<5	<5 SV	<5 SV	<5		<5	ug/kg	TM36/PM12
PCB 28 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 52 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 118 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 138 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 153 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 180 #	<5	<5	<5	<5	<5	<25 AA	<5	<5	<5		<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	<35	<35	<35	<35	<175 AA	<35	<35	<35		<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73-76		LOD/LOR	Units	Method No.
Sample ID	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10				
Depth	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00				
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T				
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023				
Natural Moisture Content	12.8	17.8	15.2	24.5	25.6	13.4	10.2	18.5	17.7		<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	11.4	15.1	13.2	19.7	20.4	11.8	9.2	15.6	15.1		<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	-	-	-	-	-	-	-	-		<0.0015	g/l	TM38/PM20
Chromium III	40.4	31.5	40.3	53.1	60.7	42.7	25.7	55.4	45.9		<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.95	0.93	1.11	2.50	8.05	1.31	0.76	1.37	2.62		<0.02	%	TM21/PM24
Acid Reserve	-	-	-	-	-	-	-	-	-		<0.000	gNaOH/100g	TM160/PM110
Alkali Reserve	-	-	-	-	-	-	-	-	-		<0.000	gNaOH/100g	TM160/PM110
pH #	8.36	8.17	8.29	7.99	8.04	8.12	8.22	8.40	8.20		<0.01	pH units	TM73/PM11
Mass of raw test portion	0.0989	0.1043	0.1077	0.111	0.1224	0.1073	0.1009	0.1062	0.1084			kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09			kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05			
Depth	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023			
Dissolved Antimony #	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.003	0.005	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.05	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	<0.0025	0.0025	0.0026	<0.0025	<0.0025	0.0053	0.0052	0.0064	0.0056	0.0029	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	<0.025	<0.025	0.026	<0.025	<0.025	0.053	0.052	0.064	0.056	0.029	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.049	0.046	0.020	0.026	0.006	0.032	0.028	0.049	0.022	0.006	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.49	0.46	0.20	0.26	0.06	0.32	0.28	0.49	0.22	0.06	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	0.0106	0.0187	<0.0015	<0.0015	<0.0015	<0.0015	0.0045	<0.0015	<0.0015	<0.0015	<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	0.106	0.187	<0.015	<0.015	<0.015	<0.015	0.045	<0.015	<0.015	<0.015	<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.014	<0.007	0.011	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.14	<0.07	0.11	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.006	0.013	0.005	0.007	0.007	0.014	0.006	0.021	0.011	0.006	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.06	0.13	0.05	0.07	0.07	0.14	0.06	0.21	0.11	0.06	<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.003	0.004	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.04	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	0.5	1.0	0.4	0.5	0.3	0.5	<0.3	0.5	0.4	<0.3	mg/l	TM173/PM0
Fluoride	<3	5	10	4	5	3	5	<3	5	4	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	65.3	64.3	497.7	817.4	9.9	0.6	64.8	15.6	27.8	9.4	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	653	643	4978	8174	99	6	648	156	278	94	<5	mg/kg	TM38/PM0
Chloride #	1.1	3.5	<0.3	<0.3	<0.3	0.6	2.0	0.8	<0.3	1.6	<0.3	mg/l	TM38/PM0
Chloride #	11	35	<3	<3	<3	6	20	8	<3	16	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	4	5	<2	<2	<2	9	5	7	3	<2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	40	50	<20	<20	<20	90	50	70	30	<20	<20	mg/kg	TM60/PM0
pH	11.01	11.19	7.93	7.70	8.19	8.33	9.56	8.32	8.28	8.33	<0.01	pH units	TM73/PM0
Total Dissolved Solids #	220	258	805	1250	64	125	149	131	93	68	<35	mg/l	TM20/PM0
Total Dissolved Solids #	2199	2580	8051	12500	640	1250	1489	1310	930	680	<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73-76		LOD/LOR	Units	Method No.
Sample ID	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10				
Depth	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00				
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T				
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023				
Dissolved Antimony #	0.033	0.004	<0.002	<0.002	<0.002	0.008	<0.002	0.002	<0.002		<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	0.33	0.04	<0.02	<0.02	<0.02	0.08	<0.02	0.02	<0.02		<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	0.0039	<0.0025	<0.0025	<0.0025	0.0037	<0.0025	<0.0025	0.0036	<0.0025		<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	0.039	<0.025	<0.025	<0.025	0.037	<0.025	<0.025	0.036	<0.025		<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.027	0.045	0.032	0.039	0.018	0.028	0.072	0.018	0.031		<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.27	0.45	0.32	0.39	0.18	0.28	0.72	0.18	0.31		<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015		<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015		<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007		<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.017	0.014	0.016	0.014	0.009	0.012	0.014	0.010	0.011		<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.17	0.14	0.16	0.14	0.09	0.12	0.14	0.10	0.11		<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	0.002	<0.002	<0.002	0.002	<0.002	0.002	0.005	<0.002	<0.002		<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.02		<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	0.032	<0.003	<0.003	<0.003	0.060	0.003	0.004	0.015		<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	0.32	<0.03	<0.03	<0.03	0.60	0.03	0.04	0.15		<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	0.4	0.3	0.3	<0.3	0.4	0.3	0.4		<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	4	<3	<3	<3	4	3	4		<3	mg/kg	TM173/PM0
Sulphate as SO4 #	23.8	19.9	11.4	15.4	66.6	20.1	31.6	26.0	20.7		<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	238	199	114	154	666	201	316	260	207		<5	mg/kg	TM38/PM0
Chloride #	<0.3	<0.3	<0.3	0.4	1.3	<0.3	0.5	0.5	0.7		<0.3	mg/l	TM38/PM0
Chloride #	<3	<3	<3	4	13	<3	5	5	7		<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	4	3	4	6	7	4	5	2	2		<2	mg/l	TM60/PM0
Dissolved Organic Carbon	40	30	40	60	70	40	50	20	20		<20	mg/kg	TM60/PM0
pH	8.29	8.13	8.19	8.30	8.18	8.25	8.17	8.19	7.92		<0.01	pH units	TM73/PM0
Total Dissolved Solids #	107	100	98	128	217	112	113	112	104		<35	mg/l	TM20/PM0
Total Dissolved Solids #	1071	1000	981	1280	2169	1120	1130	1120	1040		<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : EN12457_2

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40						
Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05						
Depth	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00						
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1	1	1	1						
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Solid Waste Analysis																
Total Organic Carbon #	0.68	0.41	0.58	0.42	0.60	1.30	0.59	0.87	1.08	0.55	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025 SV	<0.025	<0.025 SV	<0.025 SV	<0.025	<0.025	<0.025	<0.025	<0.025 SV	<0.025	6	-	-	<0.025	mg/kg	TM36/PM12
Sum of 7 PCBs #	<0.175 BA	<0.175 BA	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	826	971	50	155	<30	<30	216	<30	227	<30	500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22	0.25	<0.22	<0.22	<0.22	0.29	0.60	<0.22	9.66	<0.22	-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	0.85	1.32	<0.64	<0.64	<0.64	<0.64	1.72	<0.64	18.45	<0.64	100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	<0.025	<0.025	0.026	<0.025	<0.025	0.053	0.052	0.064	0.056	0.029	0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.49	0.46	0.20	0.26	0.06	0.32	0.28	0.49	0.22	0.06	20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium #	0.106	0.187	<0.015	<0.015	<0.015	<0.015	0.045	<0.015	<0.015	<0.015	0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.14	<0.07	0.11	<0.07	2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<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	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.06	0.13	0.05	0.07	0.07	0.14	0.06	0.21	0.11	0.06	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.04	<0.02	<0.02	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.05	<0.02	<0.02	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<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	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	2199	2580	8051	12500	640	1250	1489	1310	930	680	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	40	50	<20	<20	<20	90	50	70	30	<20	500	800	1000	<20	mg/kg	TM60/PM0
Dry Matter Content Ratio	84.3	81.1	85.6	84.9	91.2	76.9	87.6	77.5	85.6	84.8	-	-	-	<0.1	%	NONE/PM4
Moisture Content 105C (% Dry Weight)	18.6	23.3	16.8	17.8	9.7	30.1	14.1	29.1	16.8	18.0	-	-	-	<0.1	%	PM4/PM0
pH #	11.54	11.50	8.14	8.10	8.57	7.82	10.18	7.85	8.30	8.40	-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	5	10	4	5	3	5	<3	5	4	10	150	500	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	653	643	4978	8174	99	6	648	156	278	94	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	11	35	<3	<3	<3	6	20	8	<3	16	800	15000	25000	<3	mg/kg	TM38/PM0

All solid results are expressed on a dry weight basis unless stated otherwise.

Element Materials Technology

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy
EMT Job No: 23/6708

Report : EN12457_2

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73-76		Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Sample ID	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10							
Depth	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00							
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1	1	1	1							
Date of Receipt	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023	27/04/2023							
Solid Waste Analysis																
Total Organic Carbon #	0.95	0.93	1.11	2.50	8.05	1.31	0.76	1.37	2.62		3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025 SV	<0.025	<0.025 SV	<0.025	<0.025	<0.025 SV	<0.025 SV	<0.025		6	-	-	<0.025	mg/kg	TM36/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035	<0.035	<0.175 BA	<0.035	<0.035	<0.035		1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	165	87	47	<30	<30	111	215	59	45		500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	1.04	0.36	0.47	1.52	1.41	4.82	0.58	1.44	0.49		-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	2.04	0.71	0.88	2.73	2.40	8.31	1.04	2.55	0.86		100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	0.039	<0.025	<0.025	<0.025	0.037	<0.025	<0.025	0.036	<0.025		0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.27	0.45	0.32	0.39	0.18	0.28	0.72	0.18	0.31		20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium #	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015		0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.17	0.14	0.16	0.14	0.09	0.12	0.14	0.10	0.11		0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.02		0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	0.33	0.04	<0.02	<0.02	<0.02	0.08	<0.02	0.02	<0.02		0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	0.32	<0.03	<0.03	<0.03	0.60	0.03	0.04	0.15		4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	1071	1000	981	1280	2169	1120	1130	1120	1040		4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	40	30	40	60	70	40	50	20	20		500	800	1000	<20	mg/kg	TM60/PM0
Dry Matter Content Ratio	90.5	86.2	83.8	81.1	73.4	83.9	88.8	84.7	83.2		-	-	-	<0.1	%	NONE/PM4
Moisture Content 105C (% Dry Weight)	10.5	16.0	19.4	23.3	36.3	19.2	12.6	18.1	20.2		-	-	-	<0.1	%	PM4/PM0
pH #	8.36	8.17	8.29	7.99	8.04	8.12	8.22	8.40	8.20		-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	<3	4	<3	<3	<3	4	3	4		10	150	500	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	238	199	114	154	666	201	316	260	207		1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	<3	<3	<3	4	13	<3	5	5	7		800	15000	25000	<3	mg/kg	TM38/PM0

All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Ground Investigations Ireland

Reference: 12689-03-23

Location: Gowan Motors Site Naas Road

Contact: Stephen Kealy

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
23/6708	1	TP01	0.60-1.20	1-4	Degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP01	2.50	5-8	Degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP02	0.70-1.60	9-12	Trace of degraded diesel & Possible tarmac/bitumen
23/6708	1	TP02	3.20	13-16	Trace of degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP03	0.80-1.20	17-20	No interpretation possible
23/6708	1	TP03	2.70	21-24	No interpretation possible
23/6708	1	TP04	1.10-1.50	25-28	Trace of degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP04	3.20	29-32	No interpretation possible
23/6708	1	TP05	0.50-1.00	33-36	Trace of degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP05	2.00	37-40	No interpretation possible
23/6708	1	TP06	0.50	41-44	Trace of degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP07	0.50	45-48	Possible trace of degraded diesel, Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP07	1.00	49-52	Trace of possible lubricating oil
23/6708	1	TP08	0.50-1.00	53-56	No interpretation possible
23/6708	1	TP08	2.00	57-60	Possible tarmac/bitumen
23/6708	1	TP09	0.60-1.50	61-64	Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP09	1.90	65-68	Lubricating oil & Possible naturally occurring compounds
23/6708	1	TP10	0.50	69-72	Trace of lubricating oil & Possible tarmac/bitumen
23/6708	1	TP10	1.00	73-76	Possible trace of lubricating oil

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/6708	1	TP01	0.60-1.20	4	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP01	2.50	8	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP02	0.70-1.60	12	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP02	3.20	16	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP03	0.80-1.20	20	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP03	2.70	24	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP04	1.10-1.50	28	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP04	3.20	32	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/6708	1	TP05	0.50-1.00	36	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP05	2.00	40	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP06	0.50	44	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stones
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP07	0.50	48	Catherine Coles	16/05/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	16/05/2023	**Asbestos Fibres**	NAD
					Catherine Coles	16/05/2023	**Asbestos ACM**	NAD
					Catherine Coles	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP07	1.00	52	Matthew Turner	16/05/2023	**General Description (Bulk Analysis)**	Brown soil/Stone
					Matthew Turner	16/05/2023	**Asbestos Fibres**	NAD
					Matthew Turner	16/05/2023	**Asbestos ACM**	NAD
					Matthew Turner	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP08	0.50-1.00	56	Matthew Turner	16/05/2023	**General Description (Bulk Analysis)**	Brown soil/Stone
					Matthew Turner	16/05/2023	**Asbestos Fibres**	NAD
					Matthew Turner	16/05/2023	**Asbestos ACM**	NAD
					Matthew Turner	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP08	2.00	60	Matthew Turner	16/05/2023	**General Description (Bulk Analysis)**	Brown soil/Stone
					Matthew Turner	16/05/2023	**Asbestos Fibres**	NAD
					Matthew Turner	16/05/2023	**Asbestos ACM**	NAD
					Matthew Turner	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP09	0.60-1.50	64	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	Fibre Bundles
					Anthony Carman	16/05/2023	**Asbestos ACM**	ACM Debris
					Anthony Carman	16/05/2023	**Asbestos Type**	Chrysotile
					Remigiusz Blichowski	11/07/2023	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	11/07/2023	**Total Detailed Gravimetric Quantification (% Asb)**	0.011 (mass %)
					Remigiusz Blichowski	11/07/2023	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	0.011 (mass %)
					Remigiusz Blichowski	11/07/2023	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	11/07/2023	**Asbestos Gravimetric & PCOM Total**	0.011 (mass %)
23/6708	1	TP09	1.90	68	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP10	0.50	72	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD

Client Name: Ground Investigations Ireland
Reference: 12689-03-23
Location: Gowan Motors Site Naas Road
Contact: Stephen Kealy

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/6708	1	TP10	0.50	72	Anthony Carman	16/05/2023	**Asbestos Type**	NAD
23/6708	1	TP10	1.00	76	Anthony Carman	16/05/2023	**General Description (Bulk Analysis)**	Brown Soil/Stones
					Anthony Carman	16/05/2023	**Asbestos Fibres**	NAD
					Anthony Carman	16/05/2023	**Asbestos ACM**	NAD
					Anthony Carman	16/05/2023	**Asbestos Type**	NAD

Client Name: Ground Investigations Ireland

Reference: 12689-03-23

Location: Gowan Motors Site Naas Road

Contact: Stephen Kealy

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Method No.	NDP Reason
23/6708	1	TP01	0.60-1.20	1-4	TM160/PM110	pH > 4.00
23/6708	1	TP01	2.50	5-8	NONE/NONE	Sample unsuitable for this test
23/6708	1	TP01	2.50	5-8	TM38/PM20	Sample unsuitable for this test
23/6708	1	TP01	2.50	5-8	TM160/PM110	pH > 4.00

Client Name: Ground Investigations Ireland

Reference: 12689-03-23

Location: Gowan Motors Site Naas Road

Contact: Stephen Kealy

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
23/6708	1	TP05	0.50-1.00	33-36	PCB	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/6708

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution
BA	x5 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/6708

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes

EMT Job No: 23/6708

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes

EMT Job No: 23/6708

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM131	Quantification of Asbestos Fibres and ACM based on HSG 248 Second edition:2021, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes
TM160	Titrimetric determination of acid reserve to pH 4.0 or alkali reserve to pH 10.0 based on method C14.2 Canadian Government (2013).	PM110	Preparation of a 10% (w/w) aqueous solution of soil in distilled water			AR	No
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

APPENDIX 5 – HazWasteOnLine™ Report

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

8Y6W9-TJOVN-TFVEQ

Job name

Gowan Motors

Description/Comments

Project

12689-03-23

Site

Gowan Motors

Classified by

Name:
Barry Sexton
Date:
12 Jul 2023 14:39 GMT
Telephone:
353 (01) 601 5175 / 5176

Company:
Ground Investigations Ireland Ltd
Catherinestown House, Hazelhatch Road, Newcastle, Co. Dublin.

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	10 Apr 2019
Most recent 3 year Refresher	19 Apr 2022

Next 3 year Refresher due by Apr 2025

Purpose of classification

7 - Disposal of Waste

Address of the waste

Gowan Motors, Naas Road **Post Code** N/A

Description of industry/producer giving rise to the waste

Construction

Description of the specific process, sub-process and/or activity that created the waste

Foundation Construction

Description of the waste

Made Ground and Soil & Stone

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP01-24/04/2023-0.60-1.20m		Hazardous	HP 7, HP 11	3
2	TP01-24/04/2023-2.50m		Hazardous	HP 7, HP 11	6
3	TP02-24/04/2023-0.70-1.60m		Non Hazardous		9
4	TP02-24/04/2023-3.20m		Non Hazardous		11
5	TP03-24/04/2023-0.80-1.20m		Non Hazardous		14
6	TP03-24/04/2023-2.70m		Non Hazardous		16
7	TP04-24/04/2023-1.10-1.50m		Non Hazardous		18
8	TP04-24/04/2023-3.20m		Non Hazardous		21
9	TP05-24/04/2023-0.50-1.00m		Non Hazardous		23
10	TP05-24/04/2023-2.00m		Non Hazardous		26
11	TP06-24/04/2023-0.50m		Non Hazardous		28
12	TP07-24/04/2023-0.50m		Non Hazardous		31
13	TP07-24/04/2023-1.00m		Non Hazardous		34
14	TP08-24/04/2023-0.50-1.00m		Non Hazardous		37
15	TP08-24/04/2023-2.00m		Non Hazardous		39
16	TP09-24/04/2023-0.60-1.50m		Non Hazardous		42
17	TP09-24/04/2023-1.90m		Non Hazardous		45
18	TP10-24/04/2023-0.50m		Non Hazardous		48
19	TP10-24/04/2023-1.00m		Non Hazardous		51

Related documents

#	Name	Description
1	Gowan Motors[2].HWOL	Element .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Barry Sexton

Created date: 12 Jul 2023 14:39 GMT

Appendices	Page
Appendix A: Classifier defined and non EU CLP determinands	53
Appendix B: Rationale for selection of metal species	54
Appendix C: Version	55

Classification of sample: TP01-24/04/2023-0.60-1.20m

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

Sample details

Sample name:
TP01-24/04/2023-0.60-1.20m
Moisture content:
14.8%
(wet weight correction)

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

Hazard properties

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.113%)

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.113%)

Determinands

Moisture content: 14.8% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<**LOD**
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.6 mg/kg	1.32	6.3 mg/kg	0.00063 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.2 mg/kg	1.142	1.168 mg/kg	0.000117 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21.7 mg/kg	1.462	27.022 mg/kg	0.0027 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		18 mg/kg	1.126	17.267 mg/kg	0.00173 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	19 mg/kg	1.56	25.25 mg/kg	0.00162 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
9		molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		1.6	mg/kg	1.5	2.045	mg/kg	0.000205 %	✓	
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		24.1	mg/kg	2.976	61.112	mg/kg	0.00611 %	✓	
11		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
12		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		138	mg/kg	2.774	326.173	mg/kg	0.0326 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		1331	mg/kg		1134.012	mg/kg	0.113 %	✓	
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19		pH			PH		11.54	pH		11.54	pH	11.54 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		0.19	mg/kg		0.162	mg/kg	0.0000162 %	✓	
21		acenaphthylene		205-917-1	208-96-8		0.05	mg/kg		0.0426	mg/kg	0.00000426 %	✓	
22		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24		phenanthrene		201-581-5	85-01-8		0.23	mg/kg		0.196	mg/kg	0.0000196 %	✓	
25		anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
26		fluoranthene		205-912-4	206-44-0		0.15	mg/kg		0.128	mg/kg	0.0000128 %	✓	
27		pyrene		204-927-3	129-00-0		0.14	mg/kg		0.119	mg/kg	0.0000119 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
29		chrysene	601-048-00-0	205-923-4	218-01-9		0.09	mg/kg		0.0767	mg/kg	0.00000767 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
33		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
35		benzo[ghi]perylene		205-883-8	191-24-2		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
36		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.175	mg/kg		<0.175	mg/kg	<0.0000175 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
37		pH: acid/alkali reserve				0.007	gNaOH		0.007	gNaOH	0.007 gNaOH		
				ACID_ALK_RES									
38		barium { barium oxide }				88	mg/kg	1.117	83.711	mg/kg	0.00837 %	✓	
			215-127-9	1304-28-5									
39		coronene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-881-7	191-07-1									
40		benzo[j]fluoranthene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-035-00-X	205-910-3	205-82-3									
										Total:	0.168 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.113%)

HP 4: Irritant - skin irritation and eye damage "waste which on application can cause skin irritation or damage to the eye"
Force this Hazardous property to non hazardous because This material has an elevated pH (>11.5, i.e. above Hazardous limit), however the elevated pH is due to the fact that the has fragments of concrete mixed with subsoils. This material has been declassified from Hazardous (17 05 03) to Non-Hazardous (17 05 04). Acid Alkali Reserve testing has been carried out, the results of which indicate a low buffer capacity and therefore the material is considered not a significant risk in terms of HP8 Corrosive or HP4 Irritant, however, although Acid Alkali Reserve testing is a good indicator, without In Vitro testing this cannot be said for certain, but given the material with elevated pH is due to concrete in Vitro testing is not considered necessary. Acceptance and final classification of all waste is at the discretion of the facility approached.

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.54 pH)

HP 8: Corrosive "waste which on application can cause skin corrosion"
Force this Hazardous property to non hazardous because This material has an elevated pH (>11.5, i.e. above Hazardous limit), however the elevated pH is due to the fact that the has fragments of concrete mixed with subsoils. This material has been declassified from Hazardous (17 05 03) to Non-Hazardous (17 05 04). Acid Alkali Reserve testing has been carried out, the results of which indicate a low buffer capacity and therefore the material is considered not a significant risk in terms of HP8 Corrosive or HP4 Irritant, however, although Acid Alkali Reserve testing is a good indicator, without In Vitro testing this cannot be said for certain, but given the material with elevated pH is due to concrete in Vitro testing is not considered necessary. Acceptance and final classification of all waste is at the discretion of the facility approached.

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.54 pH)

Classification of sample: TP01-24/04/2023-2.50m

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

Sample details

Sample name:
TP01-24/04/2023-2.50m
Moisture content:
14.4%
(wet weight correction)

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

Hazard properties

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.147%)

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.147%)

Determinands

Moisture content: 14.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<**LOD**
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		6.6 mg/kg	1.32	7.459 mg/kg	0.000746 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.9 mg/kg	1.142	0.88 mg/kg	0.000088 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		21 mg/kg	1.126	20.239 mg/kg	0.00202 %	✓	
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	22 mg/kg	1.56	29.374 mg/kg	0.00188 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
7	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		2.2 mg/kg	1.5	2.825 mg/kg	0.000283 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		29.8 mg/kg	2.976	75.921 mg/kg	0.00759 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.186 mg/kg	0.000219 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		125	mg/kg	2.774	296.834	mg/kg	0.0297 %	✓	
11		TPH (C6 to C40) petroleum group			TPH		1717	mg/kg		1469.752	mg/kg	0.147 %	✓	
12		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
13		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
14		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
15		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
16		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
17		pH			PH		11.5	pH		11.5	pH	11.5 pH		
18		naphthalene	601-052-00-2	202-049-5	91-20-3		0.36	mg/kg		0.308	mg/kg	0.0000308 %	✓	
19		acenaphthylene		205-917-1	208-96-8		0.07	mg/kg		0.0599	mg/kg	0.00000599 %	✓	
20		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
21		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
22		phenanthrene		201-581-5	85-01-8		0.36	mg/kg		0.308	mg/kg	0.0000308 %	✓	
23		anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24		fluoranthene		205-912-4	206-44-0		0.2	mg/kg		0.171	mg/kg	0.0000171 %	✓	
25		pyrene		204-927-3	129-00-0		0.2	mg/kg		0.171	mg/kg	0.0000171 %	✓	
26		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
27		chrysene	601-048-00-0	205-923-4	218-01-9		0.08	mg/kg		0.0685	mg/kg	0.00000685 %	✓	
28		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
29		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
30		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
31		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
32		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
33		benzo[ghi]perylene		205-883-8	191-24-2		0.05	mg/kg		0.0428	mg/kg	0.00000428 %	✓	
34		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.175	mg/kg		<0.175	mg/kg	<0.0000175 %		<LOD
35		pH: acid/alkali reserve			ACID_ALK_RES		0.024	gNaOH		0.024	gNaOH	0.024 gNaOH		
36		barium { barium oxide }		215-127-9	1304-28-5		117	mg/kg	1.117	111.82	mg/kg	0.0112 %	✓	
37		coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		benzo[j]fluoranthene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-035-00-X	205-910-3	205-82-3									
										Total:	0.201 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.147%)

HP 4: Irritant - skin irritation and eye damage "waste which on application can cause skin irritation or damage to the eye"
Force this Hazardous property to non hazardous because This material has an elevated pH (>11.5, i.e. above Hazardous limit), however the elevated pH is due to the fact that the has fragments of concrete mixed with subsoils. This material has been declassified from Hazardous (17 05 03) to Non-Hazardous (17 05 04). Acid Alkali Reserve testing has been carried out, the results of which indicate a low buffer capacity and therefore the material is considered not a significant risk in terms of HP8 Corrosive or HP4 Irritant, however, although Acid Alkali Reserve testing is a good indicator, without In Vitro testing this cannot be said for certain, but given the material with elevated pH is due to concrete in Vitro testing is not considered necessary. Acceptance and final classification of all waste is at the discretion of the facility approached.

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.5 pH)

HP 8: Corrosive "waste which on application can cause skin corrosion"
Force this Hazardous property to non hazardous because This material has an elevated pH (>11.5, i.e. above Hazardous limit), however the elevated pH is due to the fact that the has fragments of concrete mixed with subsoils. This material has been declassified from Hazardous (17 05 03) to Non-Hazardous (17 05 04). Acid Alkali Reserve testing has been carried out, the results of which indicate a low buffer capacity and therefore the material is considered not a significant risk in terms of HP8 Corrosive or HP4 Irritant, however, although Acid Alkali Reserve testing is a good indicator, without In Vitro testing this cannot be said for certain, but given the material with elevated pH is due to concrete in Vitro testing is not considered necessary. Acceptance and final classification of all waste is at the discretion of the facility approached.

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.5 pH)

Classification of sample: TP02-24/04/2023-0.70-1.60m

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

Sample details

Sample name:
TP02-24/04/2023-0.70-1.60m
Moisture content:
13.6%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13.6% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		1 mg/kg	1.197	1.034 mg/kg	0.000103 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.7 mg/kg	1.32	11.065 mg/kg	0.00111 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4 mg/kg	1.142	0.395 mg/kg	0.0000395 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		10.2 mg/kg	1.462	12.88 mg/kg	0.00129 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		23 mg/kg	1.126	22.374 mg/kg	0.00224 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	24 mg/kg	1.56	32.344 mg/kg	0.00207 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		1.8 mg/kg	1.5	2.333 mg/kg	0.000233 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		37.3 mg/kg	2.976	95.917 mg/kg	0.00959 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.207 mg/kg	0.000221 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		62 mg/kg	2.774	148.605 mg/kg	0.0149 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19		pH			PH		8.14	pH		8.14	pH	8.14 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		0.09	mg/kg		0.0778	mg/kg	0.00000778 %	✓	
21		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
22		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24		phenanthrene		201-581-5	85-01-8		0.14	mg/kg		0.121	mg/kg	0.0000121 %	✓	
25		anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
26		fluoranthene		205-912-4	206-44-0		0.09	mg/kg		0.0778	mg/kg	0.00000778 %	✓	
27		pyrene		204-927-3	129-00-0		0.09	mg/kg		0.0778	mg/kg	0.00000778 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
29		chrysene	601-048-00-0	205-923-4	218-01-9		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
33		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
35		benzo[ghi]perylene		205-883-8	191-24-2		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
36		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
37		barium { barium oxide }		215-127-9	1304-28-5		86	mg/kg	1.117	82.961	mg/kg	0.0083 %	✓	
38		coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
											Total:	0.0455 %		

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 Deteminand - 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: TP02-24/04/2023-3.20m

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

Sample details

Sample name:
TP02-24/04/2023-3.20m
Moisture content:
8.2%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 8.2% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<**LOD**
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.1 mg/kg	1.32	6.181 mg/kg	0.000618 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.6 mg/kg	1.142	0.629 mg/kg	0.0000629 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22.4 mg/kg	1.462	30.054 mg/kg	0.00301 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		16 mg/kg	1.126	16.537 mg/kg	0.00165 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	16 mg/kg	1.56	22.911 mg/kg	0.00147 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		2.6 mg/kg	1.5	3.581 mg/kg	0.000358 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23.6 mg/kg	2.976	64.48 mg/kg	0.00645 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.344 mg/kg	0.000234 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		65 mg/kg	2.774	165.533 mg/kg	0.0166 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		371 mg/kg		340.578 mg/kg	0.0341 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19	●	pH			PH		8.1	pH		8.1	pH	8.1 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
21	●	acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
22	●	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23	●	fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24	●	phenanthrene		201-581-5	85-01-8		0.04	mg/kg		0.0367	mg/kg	0.00000367 %	✓	
25	●	anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
26	●	fluoranthene		205-912-4	206-44-0		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
27	●	pyrene		204-927-3	129-00-0		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
29		chrysene	601-048-00-0	205-923-4	218-01-9		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
33	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
35	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
36	●	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
37		barium { ● barium oxide }		215-127-9	1304-28-5		59	mg/kg	1.117	60.472	mg/kg	0.00605 %	✓	
38	●	coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
											Total:	0.0709 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0341%)

Classification of sample: TP03-24/04/2023-0.80-1.20m

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

Sample details

Sample name:
TP03-24/04/2023-0.80-1.20m
Moisture content:
9.2%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 9.2% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		1 mg/kg	1.197	1.087 mg/kg	0.000109 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.2 mg/kg	1.32	9.831 mg/kg	0.000983 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.5 mg/kg	1.142	1.556 mg/kg	0.000156 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15.1 mg/kg	1.462	20.039 mg/kg	0.002 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		32 mg/kg	1.126	32.714 mg/kg	0.00327 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	19 mg/kg	1.56	26.91 mg/kg	0.00173 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		2.3 mg/kg	1.5	3.133 mg/kg	0.000313 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		43 mg/kg	2.976	116.205 mg/kg	0.0116 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.319 mg/kg	0.000232 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		118 mg/kg	2.774	297.233 mg/kg	0.0297 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<**LOD**
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
19		pH			PH		8.57	pH		8.57	pH	8.57 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		0.04	mg/kg		0.0363	mg/kg	0.00000363 %	✓	
21		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
22		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
23		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
24		phenanthrene		201-581-5	85-01-8		0.07	mg/kg		0.0636	mg/kg	0.00000636 %	✓	
25		anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
26		fluoranthene		205-912-4	206-44-0		0.04	mg/kg		0.0363	mg/kg	0.00000363 %	✓	
27		pyrene		204-927-3	129-00-0		0.04	mg/kg		0.0363	mg/kg	0.00000363 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<**LOD**
29		chrysene	601-048-00-0	205-923-4	218-01-9		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
33		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
35		benzo[ghi]perylene		205-883-8	191-24-2		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
36		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<**LOD**
37		barium { barium oxide }		215-127-9	1304-28-5		55	mg/kg	1.117	55.758	mg/kg	0.00558 %	✓	
38		coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<**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 Deteminand - 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: TP03-24/04/2023-2.70m

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

Sample details

Sample name:
TP03-24/04/2023-2.70m
Moisture content:
20.4%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 20.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		3 mg/kg	1.197	2.859 mg/kg	0.000286 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16.5 mg/kg	1.32	17.341 mg/kg	0.00173 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.8 mg/kg	1.142	2.546 mg/kg	0.000255 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		39.6 mg/kg	1.462	46.071 mg/kg	0.00461 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		44 mg/kg	1.126	39.433 mg/kg	0.00394 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	48 mg/kg	1.56	59.597 mg/kg	0.00382 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1 mg/kg	1.353	0.108 mg/kg	0.0000108 %	✓	
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		4.2 mg/kg	1.5	5.015 mg/kg	0.000502 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		68.2 mg/kg	2.976	161.573 mg/kg	0.0162 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		2 mg/kg	2.554	4.066 mg/kg	0.000407 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		185 mg/kg	2.774	408.521 mg/kg	0.0409 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
19		pH			PH		7.82	pH		7.82	pH	7.82 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
21		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
22		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
23		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
24		phenanthrene		201-581-5	85-01-8		0.06	mg/kg		0.0478	mg/kg	0.00000478 %	✓	
25		anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
26		fluoranthene		205-912-4	206-44-0		0.13	mg/kg		0.103	mg/kg	0.0000103 %	✓	
27		pyrene		204-927-3	129-00-0		0.11	mg/kg		0.0876	mg/kg	0.00000876 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.09	mg/kg		0.0716	mg/kg	0.00000716 %	✓	
29		chrysene	601-048-00-0	205-923-4	218-01-9		0.08	mg/kg		0.0637	mg/kg	0.00000637 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.07	mg/kg		0.0557	mg/kg	0.00000557 %	✓	
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.03	mg/kg		0.0239	mg/kg	0.00000239 %	✓	
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.06	mg/kg		0.0478	mg/kg	0.00000478 %	✓	
33		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
35		benzo[ghi]perylene		205-883-8	191-24-2		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
36		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<**LOD**
37		barium { barium oxide }		215-127-9	1304-28-5		110	mg/kg	1.117	97.761	mg/kg	0.00978 %	✓	
38		coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
											Total:	0.0878 %		

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 Deteminand - 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: TP04-24/04/2023-1.10-1.50m

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

Sample details

Sample name:
TP04-24/04/2023-1.10-1.50m
Moisture content:
11.1%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11.1% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<LOD
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.7 mg/kg	1.32	9.038 mg/kg	0.000904 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.9 mg/kg	1.142	0.914 mg/kg	0.0000914 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		33 mg/kg	1.462	42.878 mg/kg	0.00429 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		27 mg/kg	1.126	27.025 mg/kg	0.0027 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	20 mg/kg	1.56	27.734 mg/kg	0.00178 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		2.2 mg/kg	1.5	2.934 mg/kg	0.000293 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		29 mg/kg	2.976	76.731 mg/kg	0.00767 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		92 mg/kg	2.774	226.892 mg/kg	0.0227 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		326 mg/kg		289.814 mg/kg	0.029 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**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]									
19		pH				10.18	pH		10.18	pH	10.18 pH		
				PH									
20		naphthalene				0.17	mg/kg		0.151	mg/kg	0.0000151 %	✓	
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				0.07	mg/kg		0.0622	mg/kg	0.00000622 %	✓	
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			201-695-5	86-73-7									
24		phenanthrene				0.28	mg/kg		0.249	mg/kg	0.0000249 %	✓	
			201-581-5	85-01-8									
25		anthracene				0.06	mg/kg		0.0533	mg/kg	0.00000533 %	✓	
			204-371-1	120-12-7									
26		fluoranthene				0.3	mg/kg		0.267	mg/kg	0.0000267 %	✓	
			205-912-4	206-44-0									
27		pyrene				0.3	mg/kg		0.267	mg/kg	0.0000267 %	✓	
			204-927-3	129-00-0									
28		benzo[a]anthracene				0.08	mg/kg		0.0711	mg/kg	0.00000711 %	✓	
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				0.08	mg/kg		0.0711	mg/kg	0.00000711 %	✓	
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				0.09	mg/kg		0.08	mg/kg	0.000008 %	✓	
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				0.04	mg/kg		0.0356	mg/kg	0.00000356 %	✓	
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				0.08	mg/kg		0.0711	mg/kg	0.00000711 %	✓	
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				0.09	mg/kg		0.08	mg/kg	0.000008 %	✓	
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			205-883-8	191-24-2									
36		polychlorobiphenyls; PCB				<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
37		barium { barium oxide }				84	mg/kg	1.117	83.376	mg/kg	0.00834 %	✓	
			215-127-9	1304-28-5									
38		coronene				0.08	mg/kg		0.0711	mg/kg	0.00000711 %	✓	
			205-881-7	191-07-1									
39		benzo[j]fluoranthene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		601-035-00-X	205-910-3	205-82-3									
										Total:	0.0785 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.029%)

Classification of sample: TP04-24/04/2023-3.20m

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

Sample details

Sample name:
TP04-24/04/2023-3.20m
Moisture content:
21.2%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 21.2% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4 mg/kg	1.197	3.773 mg/kg	0.000377 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		20.8 mg/kg	1.32	21.641 mg/kg	0.00216 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.1 mg/kg	1.142	1.89 mg/kg	0.000189 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		50.4 mg/kg	1.462	58.046 mg/kg	0.0058 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		47 mg/kg	1.126	41.698 mg/kg	0.00417 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	37 mg/kg	1.56	45.478 mg/kg	0.00292 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1 mg/kg	1.353	0.107 mg/kg	0.0000107 %	✓	
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		5 mg/kg	1.5	5.911 mg/kg	0.000591 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		68.2 mg/kg	2.976	159.949 mg/kg	0.016 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		3 mg/kg	2.554	6.037 mg/kg	0.000604 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		157 mg/kg	2.774	343.206 mg/kg	0.0343 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<**LOD**
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19	●	pH			PH		7.85	pH		7.85	pH	7.85 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
21	●	acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
22	●	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23	●	fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24	●	phenanthrene		201-581-5	85-01-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
25	●	anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
26	●	fluoranthene		205-912-4	206-44-0		0.05	mg/kg		0.0394	mg/kg	0.00000394 %	✓	
27	●	pyrene		204-927-3	129-00-0		0.05	mg/kg		0.0394	mg/kg	0.00000394 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
29		chrysene	601-048-00-0	205-923-4	218-01-9		0.04	mg/kg		0.0315	mg/kg	0.00000315 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
33	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
35	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
36	●	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
37		barium { ● barium oxide }		215-127-9	1304-28-5		112	mg/kg	1.117	98.538	mg/kg	0.00985 %	✓	
38	●	coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
											Total:	0.0824 %		

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 Deteminand - 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: TP05-24/04/2023-0.50-1.00m

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

Sample details

Sample name:
TP05-24/04/2023-0.50-1.00m
Moisture content:
11.9%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11.9% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	2.109 mg/kg	0.000211 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10.6 mg/kg	1.32	12.33 mg/kg	0.00123 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.2 mg/kg	1.142	1.208 mg/kg	0.000121 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		42.3 mg/kg	1.462	54.467 mg/kg	0.00545 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30 mg/kg	1.126	29.757 mg/kg	0.00298 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	69 mg/kg	1.56	94.82 mg/kg	0.00608 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3.1 mg/kg	1.5	4.097 mg/kg	0.00041 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		30.3 mg/kg	2.976	79.449 mg/kg	0.00794 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.25 mg/kg	0.000225 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		121 mg/kg	2.774	295.727 mg/kg	0.0296 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		439 mg/kg		386.759 mg/kg	0.0387 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19		pH			PH		8.3	pH		8.3	pH	8.3 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
21		acenaphthylene		205-917-1	208-96-8		0.07	mg/kg		0.0617	mg/kg	0.00000617 %	✓	
22		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24		phenanthrene		201-581-5	85-01-8		1.25	mg/kg		1.101	mg/kg	0.00011 %	✓	
25		anthracene		204-371-1	120-12-7		0.48	mg/kg		0.423	mg/kg	0.0000423 %	✓	
26		fluoranthene		205-912-4	206-44-0		3.94	mg/kg		3.471	mg/kg	0.000347 %	✓	
27		pyrene		204-927-3	129-00-0		3.09	mg/kg		2.722	mg/kg	0.000272 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.83	mg/kg		1.612	mg/kg	0.000161 %	✓	
29		chrysene	601-048-00-0	205-923-4	218-01-9		1.69	mg/kg		1.489	mg/kg	0.000149 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.85	mg/kg		1.63	mg/kg	0.000163 %	✓	
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.72	mg/kg		0.634	mg/kg	0.0000634 %	✓	
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.43	mg/kg		1.26	mg/kg	0.000126 %	✓	
33		indeno[123-cd]pyrene		205-893-2	193-39-5		0.89	mg/kg		0.784	mg/kg	0.0000784 %	✓	
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.23	mg/kg		0.203	mg/kg	0.0000203 %	✓	
35		benzo[ghi]perylene		205-883-8	191-24-2		0.83	mg/kg		0.731	mg/kg	0.0000731 %	✓	
36		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
37		barium { barium oxide }		215-127-9	1304-28-5		119	mg/kg	1.117	117.053	mg/kg	0.0117 %	✓	
38		coronene		205-881-7	191-07-1		0.15	mg/kg		0.132	mg/kg	0.0000132 %	✓	
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
											Total:	0.106 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0387%)

Classification of sample: TP05-24/04/2023-2.00m

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

Sample details

Sample name:
TP05-24/04/2023-2.00m
Moisture content:
16.8%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 16.8% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	1.992 mg/kg	0.000199 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		15.6 mg/kg	1.32	17.137 mg/kg	0.00171 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2 mg/kg	1.142	1.901 mg/kg	0.00019 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		33.9 mg/kg	1.462	41.223 mg/kg	0.00412 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		37 mg/kg	1.126	34.659 mg/kg	0.00347 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	35 mg/kg	1.56	45.422 mg/kg	0.00291 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		2.6 mg/kg	1.5	3.245 mg/kg	0.000325 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		61.9 mg/kg	2.976	153.28 mg/kg	0.0153 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.125 mg/kg	0.000212 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		134 mg/kg	2.774	309.284 mg/kg	0.0309 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
19		pH				8.4	pH		8.4	pH	8.4 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		polychlorobiphenyls; PCB				<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
37		barium { barium oxide }				126	mg/kg	1.117	117.046	mg/kg	0.0117 %	✓	
			215-127-9	1304-28-5									
38		coronene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-881-7	191-07-1									
39		benzo[j]fluoranthene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-035-00-X	205-910-3	205-82-3									
										Total:	0.0766 %		

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 Deteminand - 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: TP06-24/04/2023-0.50m

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

Sample details

Sample name:
TP06-24/04/2023-0.50m
Moisture content:
11.4%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		7 mg/kg	1.197	7.424 mg/kg	0.000742 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.7 mg/kg	1.32	10.177 mg/kg	0.00102 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.2 mg/kg	1.142	1.215 mg/kg	0.000121 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		40.4 mg/kg	1.462	52.316 mg/kg	0.00523 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		28 mg/kg	1.126	27.931 mg/kg	0.00279 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	71 mg/kg	1.56	98.122 mg/kg	0.00629 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3.1 mg/kg	1.5	4.12 mg/kg	0.000412 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		25.3 mg/kg	2.976	66.715 mg/kg	0.00667 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		96 mg/kg	2.774	235.958 mg/kg	0.0236 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		263 mg/kg		233.018 mg/kg	0.0233 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
19		pH				8.36	pH		8.36	pH	8.36 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.24	mg/kg		0.213	mg/kg	0.0000213 %	✓	
			201-581-5	85-01-8									
25		anthracene				0.08	mg/kg		0.0709	mg/kg	0.00000709 %	✓	
			204-371-1	120-12-7									
26		fluoranthene				0.34	mg/kg		0.301	mg/kg	0.0000301 %	✓	
			205-912-4	206-44-0									
27		pyrene				0.33	mg/kg		0.292	mg/kg	0.0000292 %	✓	
			204-927-3	129-00-0									
28		benzo[a]anthracene				0.18	mg/kg		0.159	mg/kg	0.0000159 %	✓	
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				0.17	mg/kg		0.151	mg/kg	0.0000151 %	✓	
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				0.21	mg/kg		0.186	mg/kg	0.0000186 %	✓	
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				0.08	mg/kg		0.0709	mg/kg	0.00000709 %	✓	
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				0.17	mg/kg		0.151	mg/kg	0.0000151 %	✓	
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				0.12	mg/kg		0.106	mg/kg	0.0000106 %	✓	
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				0.12	mg/kg		0.106	mg/kg	0.0000106 %	✓	
			205-883-8	191-24-2									
36		polychlorobiphenyls; PCB				<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
37		barium { barium oxide }				84	mg/kg	1.117	83.095	mg/kg	0.00831 %	✓	
			215-127-9	1304-28-5									
38		coronene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-881-7	191-07-1									
39		benzo[j]fluoranthene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-035-00-X	205-910-3	205-82-3									
										Total:	0.0791 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0233%)

Classification of sample: TP07-24/04/2023-0.50m

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

Sample details

Sample name:
TP07-24/04/2023-0.50m
Moisture content:
15.1%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 15.1% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	2.033 mg/kg	0.000203 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10.8 mg/kg	1.32	12.106 mg/kg	0.00121 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.7 mg/kg	1.142	1.649 mg/kg	0.000165 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		31.5 mg/kg	1.462	39.087 mg/kg	0.00391 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		31 mg/kg	1.126	29.632 mg/kg	0.00296 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	43 mg/kg	1.56	56.944 mg/kg	0.00365 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3.9 mg/kg	1.5	4.967 mg/kg	0.000497 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		37.2 mg/kg	2.976	93.999 mg/kg	0.0094 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.168 mg/kg	0.000217 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		113 mg/kg	2.774	266.143 mg/kg	0.0266 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		200 mg/kg		169.8 mg/kg	0.017 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19		pH			PH		8.17	pH		8.17	pH	8.17 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
21		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
22		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24		phenanthrene		201-581-5	85-01-8		0.07	mg/kg		0.0594	mg/kg	0.00000594 %	✓	
25		anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
26		fluoranthene		205-912-4	206-44-0		0.12	mg/kg		0.102	mg/kg	0.0000102 %	✓	
27		pyrene		204-927-3	129-00-0		0.11	mg/kg		0.0934	mg/kg	0.00000934 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.09	mg/kg		0.0764	mg/kg	0.00000764 %	✓	
29		chrysene	601-048-00-0	205-923-4	218-01-9		0.08	mg/kg		0.0679	mg/kg	0.00000679 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.09	mg/kg		0.0764	mg/kg	0.00000764 %	✓	
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.03	mg/kg		0.0255	mg/kg	0.00000255 %	✓	
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.07	mg/kg		0.0594	mg/kg	0.00000594 %	✓	
33		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
35		benzo[ghi]perylene		205-883-8	191-24-2		0.05	mg/kg		0.0425	mg/kg	0.00000425 %	✓	
36		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
37		barium { barium oxide }		215-127-9	1304-28-5		104	mg/kg	1.117	98.583	mg/kg	0.00986 %	✓	
38		coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
											Total:	0.0759 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.017%)

Classification of sample: TP07-24/04/2023-1.00m

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

Sample details

Sample name:
TP07-24/04/2023-1.00m
Moisture content:
13.2%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13.2% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	2.078 mg/kg	0.000208 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.7 mg/kg	1.32	11.117 mg/kg	0.00111 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2 mg/kg	1.142	1.983 mg/kg	0.000198 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		40.3 mg/kg	1.462	51.126 mg/kg	0.00511 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30 mg/kg	1.126	29.318 mg/kg	0.00293 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	32 mg/kg	1.56	43.325 mg/kg	0.00278 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1 mg/kg	1.353	0.117 mg/kg	0.0000117 %	✓	
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3.6 mg/kg	1.5	4.688 mg/kg	0.000469 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		37.1 mg/kg	2.976	95.844 mg/kg	0.00958 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.217 mg/kg	0.000222 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		111 mg/kg	2.774	267.283 mg/kg	0.0267 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		95 mg/kg		82.46 mg/kg	0.00825 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
19		pH				8.29	pH		8.29	pH	8.29 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.09	mg/kg		0.0781	mg/kg	0.00000781 %	✓	
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				0.14	mg/kg		0.122	mg/kg	0.0000122 %	✓	
			205-912-4	206-44-0									
27		pyrene				0.12	mg/kg		0.104	mg/kg	0.0000104 %	✓	
			204-927-3	129-00-0									
28		benzo[a]anthracene				0.12	mg/kg		0.104	mg/kg	0.0000104 %	✓	
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				0.08	mg/kg		0.0694	mg/kg	0.00000694 %	✓	
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				0.09	mg/kg		0.0781	mg/kg	0.00000781 %	✓	
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				0.04	mg/kg		0.0347	mg/kg	0.00000347 %	✓	
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				0.08	mg/kg		0.0694	mg/kg	0.00000694 %	✓	
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				0.06	mg/kg		0.0521	mg/kg	0.00000521 %	✓	
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				0.06	mg/kg		0.0521	mg/kg	0.00000521 %	✓	
			205-883-8	191-24-2									
36		polychlorobiphenyls; PCB				<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
37		barium { barium oxide }				98	mg/kg	1.117	94.974	mg/kg	0.0095 %	✓	
			215-127-9	1304-28-5									
38		coronene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-881-7	191-07-1									
39		benzo[j]fluoranthene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-035-00-X	205-910-3	205-82-3									
										Total:	0.0674 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00825%)

Classification of sample: TP08-24/04/2023-0.50-1.00m

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

Sample details

Sample name:
TP08-24/04/2023-0.50-1.00m
Moisture content:
19.7%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 19.7% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		3 mg/kg	1.197	2.884 mg/kg	0.000288 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18 mg/kg	1.32	19.084 mg/kg	0.00191 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.6 mg/kg	1.142	2.385 mg/kg	0.000238 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		53.1 mg/kg	1.462	62.32 mg/kg	0.00623 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		48 mg/kg	1.126	43.396 mg/kg	0.00434 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	55 mg/kg	1.56	68.889 mg/kg	0.00442 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.2 mg/kg	1.353	0.217 mg/kg	0.0000217 %	✓	
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		5.6 mg/kg	1.5	6.746 mg/kg	0.000675 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		67.9 mg/kg	2.976	162.277 mg/kg	0.0162 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		2 mg/kg	2.554	4.101 mg/kg	0.00041 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		148 mg/kg	2.774	329.691 mg/kg	0.033 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19		pH			PH		7.99	pH		7.99	pH	7.99 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
21		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
22		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24		phenanthrene		201-581-5	85-01-8		0.24	mg/kg		0.193	mg/kg	0.0000193 %	✓	
25		anthracene		204-371-1	120-12-7		0.06	mg/kg		0.0482	mg/kg	0.00000482 %	✓	
26		fluoranthene		205-912-4	206-44-0		0.42	mg/kg		0.337	mg/kg	0.0000337 %	✓	
27		pyrene		204-927-3	129-00-0		0.39	mg/kg		0.313	mg/kg	0.0000313 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.26	mg/kg		0.209	mg/kg	0.0000209 %	✓	
29		chrysene	601-048-00-0	205-923-4	218-01-9		0.26	mg/kg		0.209	mg/kg	0.0000209 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.32	mg/kg		0.257	mg/kg	0.0000257 %	✓	
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.13	mg/kg		0.104	mg/kg	0.0000104 %	✓	
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.27	mg/kg		0.217	mg/kg	0.0000217 %	✓	
33		indeno[123-cd]pyrene		205-893-2	193-39-5		0.19	mg/kg		0.153	mg/kg	0.0000153 %	✓	
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
35		benzo[ghi]perylene		205-883-8	191-24-2		0.19	mg/kg		0.153	mg/kg	0.0000153 %	✓	
36		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
37		barium { barium oxide }		215-127-9	1304-28-5		142	mg/kg	1.117	127.311	mg/kg	0.0127 %	✓	
38		coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
											Total:	0.0861 %		

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 Deteminand - 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: TP08-24/04/2023-2.00m

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

Sample details

Sample name:
TP08-24/04/2023-2.00m
Moisture content:
20.4%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 20.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		12 mg/kg	1.197	11.435 mg/kg	0.00114 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		15.5 mg/kg	1.32	16.29 mg/kg	0.00163 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.6 mg/kg	1.142	1.455 mg/kg	0.000145 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		60.7 mg/kg	1.462	70.618 mg/kg	0.00706 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		63 mg/kg	1.126	56.461 mg/kg	0.00565 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	202 mg/kg	1.56	250.806 mg/kg	0.0161 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.2 mg/kg	1.353	0.215 mg/kg	0.0000215 %	✓	
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		4.4 mg/kg	1.5	5.254 mg/kg	0.000525 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		41.2 mg/kg	2.976	97.607 mg/kg	0.00976 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.033 mg/kg	0.000203 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		147 mg/kg	2.774	324.608 mg/kg	0.0325 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		114 mg/kg		90.744 mg/kg	0.00907 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		**<LOD**
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		**<LOD**
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19	●	pH			PH		8.04	pH		8.04	pH	8.04 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
21	●	acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
22	●	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23	●	fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24	●	phenanthrene		201-581-5	85-01-8		0.19	mg/kg		0.151	mg/kg	0.0000151 %	✓	
25	●	anthracene		204-371-1	120-12-7		0.05	mg/kg		0.0398	mg/kg	0.00000398 %	✓	
26	●	fluoranthene		205-912-4	206-44-0		0.31	mg/kg		0.247	mg/kg	0.0000247 %	✓	
27	●	pyrene		204-927-3	129-00-0		0.28	mg/kg		0.223	mg/kg	0.0000223 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.2	mg/kg		0.159	mg/kg	0.0000159 %	✓	
29		chrysene	601-048-00-0	205-923-4	218-01-9		0.21	mg/kg		0.167	mg/kg	0.0000167 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.3	mg/kg		0.239	mg/kg	0.0000239 %	✓	
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.11	mg/kg		0.0876	mg/kg	0.00000876 %	✓	
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.25	mg/kg		0.199	mg/kg	0.0000199 %	✓	
33	●	indeno[123-cd]pyrene		205-893-2	193-39-5		0.21	mg/kg		0.167	mg/kg	0.0000167 %	✓	
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.06	mg/kg		0.0478	mg/kg	0.00000478 %	✓	
35	●	benzo[ghi]perylene		205-883-8	191-24-2		0.23	mg/kg		0.183	mg/kg	0.0000183 %	✓	
36	●	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
37		barium { ● barium oxide }		215-127-9	1304-28-5		144	mg/kg	1.117	127.978	mg/kg	0.0128 %	✓	
38	●	coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
											Total:	0.0969 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00907%)

Classification of sample: TP09-24/04/2023-0.60-1.50m

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

Sample details

Sample name:
TP09-24/04/2023-0.60-1.50m
Moisture content:
11.8%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11.8% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	2.112 mg/kg	0.000211 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10.8 mg/kg	1.32	12.577 mg/kg	0.00126 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.6 mg/kg	1.142	1.612 mg/kg	0.000161 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		42.7 mg/kg	1.462	55.044 mg/kg	0.0055 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		36 mg/kg	1.126	35.749 mg/kg	0.00357 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	76 mg/kg	1.56	104.558 mg/kg	0.0067 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.2 mg/kg	1.353	0.239 mg/kg	0.0000239 %	✓	
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		1.9 mg/kg	1.5	2.514 mg/kg	0.000251 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		33.3 mg/kg	2.976	87.415 mg/kg	0.00874 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		123 mg/kg	2.774	300.956 mg/kg	0.0301 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		230 mg/kg		202.86 mg/kg	0.0203 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**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]									
19		pH				8.12	pH		8.12	pH	8.12 pH		
				PH									
20		naphthalene				0.11	mg/kg		0.097	mg/kg	0.0000097 %	✓	
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				0.17	mg/kg		0.15	mg/kg	0.000015 %	✓	
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
23		fluorene				0.08	mg/kg		0.0706	mg/kg	0.00000706 %	✓	
			201-695-5	86-73-7									
24		phenanthrene				0.54	mg/kg		0.476	mg/kg	0.0000476 %	✓	
			201-581-5	85-01-8									
25		anthracene				0.17	mg/kg		0.15	mg/kg	0.000015 %	✓	
			204-371-1	120-12-7									
26		fluoranthene				0.9	mg/kg		0.794	mg/kg	0.0000794 %	✓	
			205-912-4	206-44-0									
27		pyrene				0.88	mg/kg		0.776	mg/kg	0.0000776 %	✓	
			204-927-3	129-00-0									
28		benzo[a]anthracene				0.65	mg/kg		0.573	mg/kg	0.0000573 %	✓	
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				0.62	mg/kg		0.547	mg/kg	0.0000547 %	✓	
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				1.08	mg/kg		0.953	mg/kg	0.0000953 %	✓	
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				0.42	mg/kg		0.37	mg/kg	0.000037 %	✓	
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				1	mg/kg		0.882	mg/kg	0.0000882 %	✓	
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				0.71	mg/kg		0.626	mg/kg	0.0000626 %	✓	
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				0.12	mg/kg		0.106	mg/kg	0.0000106 %	✓	
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				0.71	mg/kg		0.626	mg/kg	0.0000626 %	✓	
			205-883-8	191-24-2									
36		polychlorobiphenyls; PCB				<0.175	mg/kg		<0.175	mg/kg	<0.0000175 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
37		barium { barium oxide }				83	mg/kg	1.117	81.735	mg/kg	0.00817 %	✓	
			215-127-9	1304-28-5									
38		coronene				0.15	mg/kg		0.132	mg/kg	0.0000132 %	✓	
			205-881-7	191-07-1									
39		benzo[j]fluoranthene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		601-035-00-X	205-910-3	205-82-3									
40		asbestos				110	mg/kg		97.02	mg/kg	0.0097 %	✓	
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
										Total:	0.0959 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0203%)

Classification of sample: TP09-24/04/2023-1.90m

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

Sample details

Sample name:
TP09-24/04/2023-1.90m
Moisture content:
9.2%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 9.2% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		1 mg/kg	1.197	1.087 mg/kg	0.000109 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.8 mg/kg	1.32	9.351 mg/kg	0.000935 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.2 mg/kg	1.142	1.245 mg/kg	0.000124 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25.7 mg/kg	1.462	34.106 mg/kg	0.00341 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		26 mg/kg	1.126	26.58 mg/kg	0.00266 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	22 mg/kg	1.56	31.159 mg/kg	0.002 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		2.5 mg/kg	1.5	3.405 mg/kg	0.000341 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		38.5 mg/kg	2.976	104.044 mg/kg	0.0104 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.319 mg/kg	0.000232 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		107 mg/kg	2.774	269.525 mg/kg	0.027 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		309 mg/kg		280.572 mg/kg	0.0281 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19	●	pH			PH		8.22	pH		8.22	pH	8.22 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		0.04	mg/kg		0.0363	mg/kg	0.00000363 %	✓	
21	●	acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
22	●	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23	●	fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24	●	phenanthrene		201-581-5	85-01-8		0.09	mg/kg		0.0817	mg/kg	0.00000817 %	✓	
25	●	anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
26	●	fluoranthene		205-912-4	206-44-0		0.14	mg/kg		0.127	mg/kg	0.0000127 %	✓	
27	●	pyrene		204-927-3	129-00-0		0.13	mg/kg		0.118	mg/kg	0.0000118 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.1	mg/kg		0.0908	mg/kg	0.00000908 %	✓	
29		chrysene	601-048-00-0	205-923-4	218-01-9		0.1	mg/kg		0.0908	mg/kg	0.00000908 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.13	mg/kg		0.118	mg/kg	0.0000118 %	✓	
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.05	mg/kg		0.0454	mg/kg	0.00000454 %	✓	
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.1	mg/kg		0.0908	mg/kg	0.00000908 %	✓	
33	●	indeno[123-cd]pyrene		205-893-2	193-39-5		0.08	mg/kg		0.0726	mg/kg	0.00000726 %	✓	
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
35	●	benzo[ghi]perylene		205-883-8	191-24-2		0.08	mg/kg		0.0726	mg/kg	0.00000726 %	✓	
36	●	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
37		barium { ● barium oxide }		215-127-9	1304-28-5		136	mg/kg	1.117	137.875	mg/kg	0.0138 %	✓	
38	●	coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
											Total:	0.0893 %		

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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0281%)

Classification of sample: TP10-24/04/2023-0.50m

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

Sample details

Sample name:
TP10-24/04/2023-0.50m
Moisture content:
15.6%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 15.6% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	2.021 mg/kg	0.000202 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13.8 mg/kg	1.32	15.378 mg/kg	0.00154 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.8 mg/kg	1.142	0.771 mg/kg	0.0000771 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		55.4 mg/kg	1.462	68.339 mg/kg	0.00683 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		40 mg/kg	1.126	38.01 mg/kg	0.0038 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	196 mg/kg	1.56	258.031 mg/kg	0.0165 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3.4 mg/kg	1.5	4.305 mg/kg	0.00043 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		32.8 mg/kg	2.976	82.393 mg/kg	0.00824 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.155 mg/kg	0.000216 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		188 mg/kg	2.774	440.179 mg/kg	0.044 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		212 mg/kg		178.928 mg/kg	0.0179 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**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]									
19		pH				8.4	pH		8.4	pH	8.4 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			201-695-5	86-73-7									
24		phenanthrene				0.14	mg/kg		0.118	mg/kg	0.0000118 %	✓	
			201-581-5	85-01-8									
25		anthracene				0.05	mg/kg		0.0422	mg/kg	0.00000422 %	✓	
			204-371-1	120-12-7									
26		fluoranthene				0.33	mg/kg		0.279	mg/kg	0.0000279 %	✓	
			205-912-4	206-44-0									
27		pyrene				0.3	mg/kg		0.253	mg/kg	0.0000253 %	✓	
			204-927-3	129-00-0									
28		benzo[a]anthracene				0.28	mg/kg		0.236	mg/kg	0.0000236 %	✓	
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				0.24	mg/kg		0.203	mg/kg	0.0000203 %	✓	
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				0.33	mg/kg		0.279	mg/kg	0.0000279 %	✓	
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				0.13	mg/kg		0.11	mg/kg	0.000011 %	✓	
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				0.26	mg/kg		0.219	mg/kg	0.0000219 %	✓	
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				0.2	mg/kg		0.169	mg/kg	0.0000169 %	✓	
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				0.05	mg/kg		0.0422	mg/kg	0.00000422 %	✓	
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				0.19	mg/kg		0.16	mg/kg	0.000016 %	✓	
			205-883-8	191-24-2									
36		polychlorobiphenyls; PCB				<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
37		barium { barium oxide }				143	mg/kg	1.117	134.753	mg/kg	0.0135 %	✓	
			215-127-9	1304-28-5									
38		coronene				0.05	mg/kg		0.0422	mg/kg	0.00000422 %	✓	
			205-881-7	191-07-1									
39		benzo[j]fluoranthene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		601-035-00-X	205-910-3	205-82-3									
										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 Deteminand - 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 Solid waste without liquid phase

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0179%)

Classification of sample: TP10-24/04/2023-1.00m

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

Sample details

Sample name:
TP10-24/04/2023-1.00m
Moisture content:
15.1%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 15.1% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	2.033 mg/kg	0.000203 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16.4 mg/kg	1.32	18.384 mg/kg	0.00184 %	✓	
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		3.8 mg/kg	1.142	3.685 mg/kg	0.000369 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		45.9 mg/kg	1.462	56.956 mg/kg	0.0057 %	✓	
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<0.3 mg/kg	2.27	<0.681 mg/kg	<0.0000681 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		46 mg/kg	1.126	43.97 mg/kg	0.0044 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	84 mg/kg	1.56	111.24 mg/kg	0.00713 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
9	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		4.7 mg/kg	1.5	5.986 mg/kg	0.000599 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		57.4 mg/kg	2.976	145.041 mg/kg	0.0145 %	✓	
11	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1 mg/kg	2.554	2.168 mg/kg	0.000217 %	✓	
12	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		369 mg/kg	2.774	869.087 mg/kg	0.0869 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<52 mg/kg		<52 mg/kg	<0.0052 %		<LOD
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	toluene	601-021-00-3	203-625-9	108-88-3		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19		pH			PH		8.2	pH		8.2	pH	8.2 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
21		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
22		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23		fluorene		201-695-5	86-73-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
24		phenanthrene		201-581-5	85-01-8		0.08	mg/kg		0.0679	mg/kg	0.00000679 %	✓	
25		anthracene		204-371-1	120-12-7		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
26		fluoranthene		205-912-4	206-44-0		0.12	mg/kg		0.102	mg/kg	0.0000102 %	✓	
27		pyrene		204-927-3	129-00-0		0.12	mg/kg		0.102	mg/kg	0.0000102 %	✓	
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.09	mg/kg		0.0764	mg/kg	0.00000764 %	✓	
29		chrysene	601-048-00-0	205-923-4	218-01-9		0.08	mg/kg		0.0679	mg/kg	0.00000679 %	✓	
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.11	mg/kg		0.0934	mg/kg	0.00000934 %	✓	
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.04	mg/kg		0.034	mg/kg	0.0000034 %	✓	
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.09	mg/kg		0.0764	mg/kg	0.00000764 %	✓	
33		indeno[123-cd]pyrene		205-893-2	193-39-5		0.06	mg/kg		0.0509	mg/kg	0.00000509 %	✓	
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
35		benzo[ghi]perylene		205-883-8	191-24-2		0.07	mg/kg		0.0594	mg/kg	0.00000594 %	✓	
36		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
37		barium { barium oxide }		215-127-9	1304-28-5		124	mg/kg	1.117	117.541	mg/kg	0.0118 %	✓	
38		coronene		205-881-7	191-07-1		<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
39		benzo[j]fluoranthene	601-035-00-X	205-910-3	205-82-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
											Total:	0.139 %		

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 Deteminand - 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 EU CLP determinands

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

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

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

EU CLP index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

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

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 Acute 1; H400 , Aquatic Chronic 1; H410

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

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

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

- **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: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **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 Acute 1; H400 , Aquatic Chronic 1; H410

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

EU 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.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
29 Sep 2015 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

- **pH: acid/alkali reserve** (CAS Number: ACID_ALK_RES)

Description/Comments: Appendix C4; unit: grams of sodium hydroxide (equivalent) per 100g of substance required to adjust the pH to the appropriate value
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **barium oxide** (EC Number: 215-127-9, CAS Number: 1304-28-5)

Description/Comments: Data from ECHA's C&L Inventory Database, Sigma Aldrich SDS dated 6/2/20
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/88825
Data source date: 02 Apr 2020
Hazard Statements: Acute Tox. 3; H301 , Skin Corr. 1B; H314 , Eye Dam. 1; H318 , Acute Tox. 1; H332

- **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

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 (edit as required)

arsenic {arsenic trioxide}

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

cadmium {cadmium oxide}

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

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

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

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

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

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

molybdenum {molybdenum(VI) oxide}

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

nickel {nickel chromate}

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

selenium {nickel selenate}

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

zinc {zinc chromate}

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

barium {barium oxide}

Cr VI not detected

Appendix C: Version

HazWasteOnline Classification Engine: EU WM3 1st Edition v1.1.NI using the EU LoW
HazWasteOnline Classification Engine Version: 2023.192.5679.10455 (11 Jul 2023)
HazWasteOnline Database: 2023.192.5679.10455 (11 Jul 2023)

This classification utilises the following guidance and legislation:
WM3 v1.1.NI - Waste Classification - 1st Edition v1.1.NI - Jan 2021
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 Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
17th ATP - Regulation (EU) 2021/849 of 11 March 2021
18th ATP - Regulation (EU) 2022/692 of 16 February 2022

APPENDIX 6 – WAC Summary Data

Waste Categorisation Summary Table

Gowan Motors Former Site

Sample ID	TP01	TP01	TP02	TP02	TP03	TP03	TP04	TP04	TP05	TP05	TP06	TP07	TP07	TP08	TP08	TP09	TP09	TP10	TP10					
Sample Depth (m)	0.60-1.20	2.50	0.70-1.60	3.20	0.80-1.20	2.70	1.10-1.50	3.20	0.50-1.00	2.00	0.50	0.50	1.00	0.50-1.00	2.00	0.60-1.50	1.90	0.50	1.00					
Material Description	Made Ground	Made Ground	Made Ground	Made Ground	Made Ground	Made Ground	Made Ground	Made Ground	Made Ground	Clay	Made Ground	Made Ground	Clay	Made Ground	Made Ground	Made Ground	Clay	Made Ground	Made Ground					
Sample Date	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023	24/04/2023					
LoW Code	17 05 03	17 05 03	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04	17 05 04					
Waste Category	Category D	Category D	Category C	Category C	Category B1	Category B1	Category B1	Category B1	Category B1	Category A	Category C	Category B1	Category B1	Category B1	Category C	Category C2	Category B1	Category B1	Category B1	Inert Criteria	Walshestown / IMS* Criteria	Hazardous Criteria	LOD LOR	Units
Metals																								
Antimony	<1	<1	1	<1	1	3	<1	4	2	2	7	2	2	3	12	2	1	2	2	-	-	HazWaste	<1	mg/kg
Arsenic	5.6	6.6	9.7	5.1	8.2	16.5	7.7	20.8	10.6	15.6	8.7	10.8	9.7	18	15.5	10.8	7.8	13.8	16.4	-	-	HazWaste	<0.5	mg/kg
Barium	88	117	86	59	55	110	84	112	119	126	84	104	98	142	144	83	136	143	124	-	-	HazWaste	<1	mg/kg
Cadmium	1.2	0.9	0.4	0.6	1.5	2.8	0.9	2.1	1.2	2	1.2	1.7	2	2.6	1.6	1.6	1.2	0.8	3.8	-	-	HazWaste	<0.1	mg/kg
Chromium	21.7	26.7	10.2	22.4	15.1	39.6	33	50.4	42.3	33.9	40.4	31.5	40.3	53.1	60.7	42.7	25.7	55.4	45.9	-	-	HazWaste	<0.5	mg/kg
Copper	18	21	23	16	32	44	27	47	30	37	28	31	30	48	63	36	26	40	46	-	-	HazWaste	<1	mg/kg
Lead	19	22	24	16	19	48	20	37	69	35	71	43	32	55	202	76	22	196	84	-	-	HazWaste	<5	mg/kg
Mercury	<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	0.2	0.2	0.2	<0.1	<0.1	<0.1	-	-	HazWaste	<0.1	mg/kg
Molybdenum	1.6	2.2	1.8	2.6	2.3	4.2	2.2	5	3.1	2.6	3.1	3.9	3.6	5.6	4.4	1.9	2.5	3.4	4.7	-	-	HazWaste	<0.1	mg/kg
Nickel	24.1	29.8	37.3	23.6	43	68.2	29	68.2	30.3	61.9	25.3	37.2	37.1	67.9	41.2	33.3	38.5	32.8	57.4	-	-	HazWaste	<0.7	mg/kg
Selenium	<1	1	1	1	1	2	<1	3	1	1	<1	1	1	2	1	<1	1	1	1	-	-	HazWaste	<1	mg/kg
Zinc	138	125	62	65	118	185	92	157	121	134	96	113	111	148	147	123	107	188	389	-	-	HazWaste	<5	mg/kg
Hexavalent Chromium	<0.3	NDP	<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	<0.3	<0.3	<0.3	<0.3	-	-	HazWaste	<0.3	mg/kg
pH (solid sample)	11.54	11.5	8.14	8.1	8.57	7.82	10.18	7.85	8.3	8.4	8.36	8.17	8.29	7.99	8.04	8.12	8.22	8.4	8.2	-	-	HazWaste	<0.01	pH units
alkali reserve	0.007	0.024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.000	gNaOH/100g
Asbestos																								
Asbestos (Dry Weight)	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	0.011	NAD	NAD	NAD	-	-	-	-	%
Asbestos (Moisture Corrected Weight)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0097	-	-	-	-	-	0.1	<0.001	%
ACM Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACM Debris	-	-	-	-	-	-	Presence	Presence
PAHs																								
Naphthalene	0.19	0.36	0.09	<0.04	0.04	<0.04	0.17	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.11	0.04	<0.04	<0.04	-	-	HazWaste	<0.04	mg/kg
Acenaphthylene	0.05	0.07	<0.03	<0.03	<0.03	<0.03	0.07	<0.03	0.07	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.17	<0.03	<0.03	<0.03	-	-	HazWaste	<0.03	mg/kg
Acenaphthene	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	HazWaste	<0.05	mg/kg
Fluorene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.08	<0.04	<0.04	<0.04	-	-	HazWaste	<0.04	mg/kg
Phenanthrene	0.23	0.36	0.14	0.04	0.07	0.06	0.28	<0.03	1.25	<0.03	0.24	0.07	0.09	0.24	0.19	0.54	0.09	0.14	0.08	-	-	HazWaste	<0.03	mg/kg
Anthracene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	0.48	<0.04	0.08	<0.04	<0.04	0.06	0.05	0.17	<0.04	0.05	<0.04	-	-	HazWaste	<0.04	mg/kg
Fluoranthene	0.15	0.2	0.09	<0.03	0.04	0.13	0.3	0.05	3.94	<0.03	0.34	0.12	0.14	0.42	0.31	0.9	0.14	0.33	0.12	-	-	HazWaste	<0.03	mg/kg
Pyrene	0.14	0.2	0.09	<0.03	0.04	0.11	0.3	0.05	3.09	<0.03	0.33	0.11	0.12	0.39	0.28	0.88	0.13	0.3	0.12	-	-	HazWaste	<0.03	mg/kg
Benzo(a)anthracene	<0.06	<0.06	<0.06	<0.06	<0.06	0.09	0.08	<0.06	1.83	<0.06	0.18	0.09	0.12	0.26	0.2	0.65	0.1	0.28	0.09	-	-	HazWaste	<0.06	mg/kg
Chrysene	0.09	0.08	<0.02	<0.02	<0.02	0.08	0.08	0.04	1.69	<0.02	0.17	0.08	0.08	0.26	0.21	0.62	0.1	0.24	0.08	-	-	HazWaste	<0.02	mg/kg
Benzo(bk)fluoranthene	<0.07	<0.07	<0.07	<0.07	<0.07	0.1	0.13	<0.07	2.57	<0.07	0.29	0.12	0.13	0.45	0.41	1.5	0.18	0.46	0.15	-	-	HazWaste	<0.07	mg/kg
Benzo(a)pyrene	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	0.08	<0.04	1.43	<0.04	0.17	0.07	0.08	0.27	0.25	1	0.1	0.26	0.09	-	-	HazWaste	<0.04	mg/kg
Indeno(123cd)pyrene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.09	<0.04	0.89	<0.04	0.12	<0.04	0.06	0.19	0.21	0.71	0.08	0.2	0.06	-	-	HazWaste	<0.04	mg/kg
Dibenzo(ah)anthracene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.23	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	0.12	<0.04	0.05	<0.04	-	-	HazWaste	<0.04	mg/kg
Benzo(ghi)perylene	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.83	<0.04	0.12	0.05	0.06	0.19	0.23	0.71	0.08	0.19	0.07	-	-	HazWaste	<0.04	mg/kg
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.08	<0.04	0.15	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.15	<0.04	0.05	<0.04	-	-	HazWaste	<0.04	mg/kg
PAH 6 Total	<0.22	0.25	<0.22	<0.22	<0.22	0.29	0.6	<0.22	9.66	<0.22	1.04	0.36	0.47	1.52	1.41	4.82	0.58	1.44	0.49	-	-	-	<0.22	mg/kg
PAH 17 Total	0.85	1.32	<0.64	<0.64	<0.64	<0.64	1.72	<0.64	18.45	<0.64	2.04	0.71	0.88	2.73	2.4	8.31	1.04	2.55	0.86	100	100	-	<0.64	mg/kg
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.09	<0.05	1.85	<0.05	0.21	0.09	0.09	0.32	0.3	1.08	0.13	0.33	0.11	-	-	HazWaste	<0.05	mg/kg
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.04	<0.02	0.72	<0.02	0.08	0.03	0.04	0.13	0.11	0.42	0.05	0.13	0.04	-	-	HazWaste	<0.02	mg/kg
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	HazWaste	<1	mg/kg
Hydrocarbons																								
TPH (C5-40)	1331	1717	<52	371	<52	<52	326	<52	439	<52	263	200	95	<52	114	230	309	212	<52	-	-	HazWaste	<52	mg/kg
MTBE	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	HazWaste	<5	ug/kg
Benzene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	HazWaste	<5	ug/kg
Toluene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	HazWaste	<5	ug/kg
Ethylbenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	HazWaste	<5	ug/kg
m/p-Xylene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	HazWaste	<5	ug/kg
o-Xylene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	HazWaste	<5	ug/kg
Total 7 PCBs	<175	<175	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<175	<35	<35	<35	1,000	1,000	HazWaste	<35	ug/kg
WAC Solid Sample Summary**																								
Total Organic Carbon *	0.68	0.41	0.58	0.42	0.60	1.30	0.59	0.87	1.08	0.55	0.95	0.93	1.11	2.50	8.05	1.31	0.76	1.37	2.62	3	6	-	<0.02	%
Sum of BTEX	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	6	6	-	<0.025	mg/kg
Sum of 7 PCBs	<0.175	<0.175	<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	<0.175	<0.035	<0.035	<0.035	1	1	-	<0.035	mg/kg
Mineral Oil	826	971	50	155	<30	<30	216	<30	227	<30	165	87	47	<30	<30	111	215	59	45	500	500	-	<30	mg/kg
PAH Sum of 6	<0.22	0.25	<0.22	<0.22	<0.22	0.29	0.60	<0.22	9.66	<0.22	1.04	0.36	0.47	1.52	1.41	4.82	0.58	1.44	0.49	-	-	-	<0.22	mg/kg
PAH Sum of 17	0.85	1.32	<0.64	<0.64	<0.64	<0.64	1.72	<0.64	18.45	<0.64	2.04	0.71	0.88	2.73	2.40	8.31	1.04	2.55	0.86	100	100	-	<0.64	mg/kg
WAC Leachate Data**																								
Arsenic	<0.025	<0.025	0.026	<0.025	<0.025	0.053	0.052	0.064	0.056	0.029	0.039	<0.025	<0.025	<0.025	0.037	<0.025	<0.025	0.036	<0.025	0.5	1.5	-	<0.025	mg/kg
Barium	0.49	0.46	0.20	0.26	0.06	0.32	0.28	0.49	0.22	0.06	0.27	0.45	0.32	0.39	0.18	0.28	0.72	0.18	0.31	20	20	-	<0.03	mg/kg
Cadmium	<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	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.04	0.04	-	<0.005	mg/kg
Chromium	0.106	0.187	<0.015	<0.015	<0.015	<0.015	0.045	<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	0.5	-	<0.015	mg/kg
Copper	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.14	<0.07	0.11	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	2	2	-	<0.07	mg/kg
Mercury	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.01	-	<0.0001	mg/kg
Molybdenum	0.06	0.13	0.05	0.07	0.07	0.14	0.06	0.21	0.11	0.06	0.17	0.14	0.16	0.14	0.09	0.12	0.14	0.10	0.11	0.5	1.5	-	<0.02	mg/kg
Nickel	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.04	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.02	0.4	0.4	-	<0.02	mg/kg
Lead	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	0.5	-	<0.05	mg/kg
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.05	<0.02	<0.02	0.33	0.04	<0.02	<0.02	<0.02	0.08	<0.02	0.02	<0.02	0.06	0.18	-	<0.02	mg/kg
Selenium	<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	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.1	0.3	-	<0.03	mg/kg
Zinc	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	0.32	<0.03	<0.03	<0.03	0.60	0.03	0.04	0.15	4	4	-	<0.03	mg/kg
Total Dissolved Solids	2199	2580	8051	12500	640	1250	1489	1310	930	680	1071	1000	981	1280	2169	1120	1130	1120	1040	4000	12,000	-	<350	mg/kg
Dissolved Organic Carbon	40	50	<20	<20	<20	90	50	70	30	<20	40	30	40	60	70	40	50	20	20	500	500	-	<20	mg/kg
Phenol	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	1	-	<0.1	mg/kg
Fluoride	<3	5	10	4	5	3	5	<3	5	4	<3	<3	4	<3	<3	<3	4	3	4	10	10	-	<3	mg/kg
Sulphate as SO4	653	643	4978	8174	99	6	648	156	278	94	238	199	114	154	666	201	316	260	207	1000	3,000	-	<0.5	mg/kg
Chloride	11	35	<3	<3	<3	6	20	8	<3	16	<3	<3	<3	4	13	<3	5	5	7	800	2,400	-	<3	mg/kg

NAD- no asbestos detected

* - Integrated Materials Solutions Landfill, Hollywood Great, Nag's Head, The Naul, Co. Dublin

** - limits as specified in Council Decision 2003/33/EC