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APPENDIX 8-1

**STAGE 2 – FLOOD RISK
ASSESSMENT (FRA), TOBIN 2025**

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**Kingston Stables Ltd.
Residential Development at
Kingston, Knocknacarra, Co.
Galway
Flood Risk Assessment**

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

TOBIN were appointed by Kingston Stables Ltd. to undertake a Flood Risk Assessment (FRA) for a proposed residential development at Kingston, Knocknacarra, Co. Galway.

The Planning System and Flood Risk Management (PSFRM) Guidelines categorise types of development into three vulnerability classes based on their sensitivity to flooding. As per Table 2.11 for the classification of vulnerability of different types of development in the PSFRM Guidelines, “residential properties and ESB substations” are categorized as “highly vulnerable” development and as such are considered appropriate in Flood Zone C (Less frequently than the 0.1% AEP event), ‘childcare facilities’ . are considered appropriate in Flood Zone B (Between the 0.1% and 1% AEP event)

The subject site is bounded to the south of the site by Kingston Road. Residential properties bound the site to the east, greenfield to the west, Galway Golf Club to the south, and Commercial and residential properties to the North. The western distributor road is just north of the subject site.

There are large areas of dense vegetation located on the northern half of the subject site. The subject site is hilly, with multiple raised areas noted. There is an existing drain in the northern half of the subject site.

There is one hydraulic feature of particular interest to the subject site. The Knocknacarra culvert flows just northwest of the subject site. The culvert was installed to redirect a river which historically to flow through the subject site from north to south.

The purpose of this Stage 2 FRA report is to identify, quantify, and communicate the risks of flooding, if any, to the proposed development.



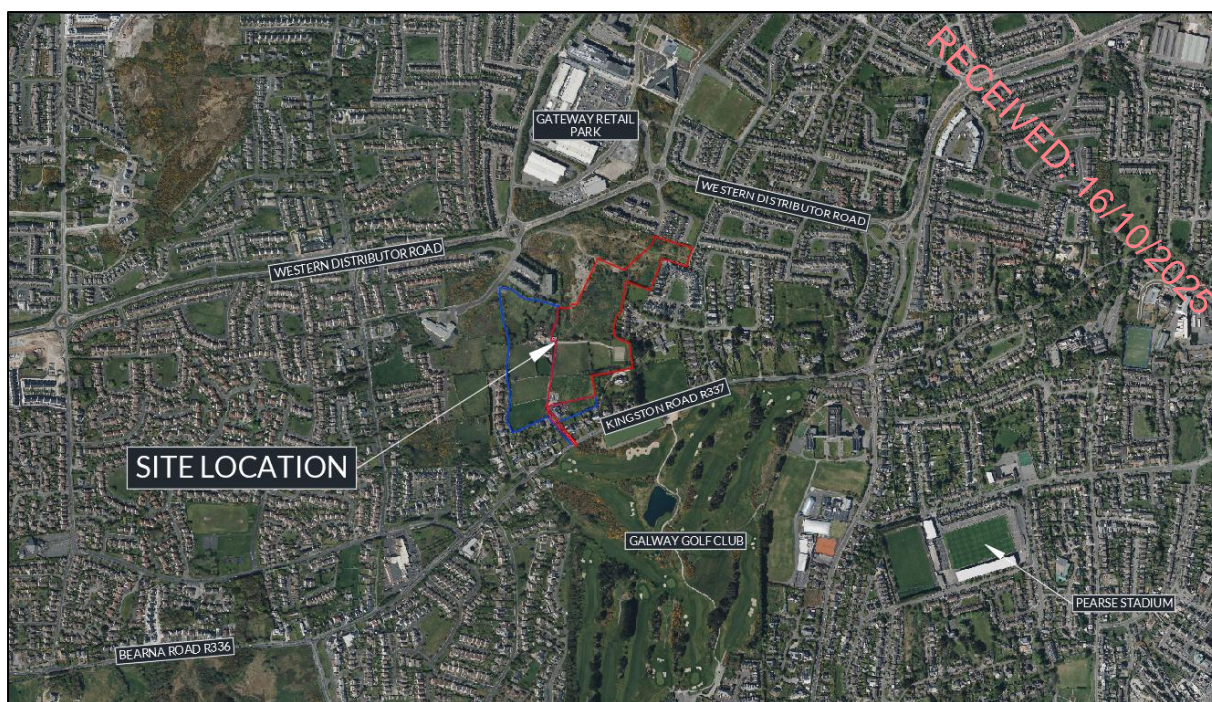


Figure 1-11: Site Location

1.2 DEVELOPMENT DESCRIPTION

Planning permission is sought by Kingston Stables Ltd for development of a Large-Scale Residential Development (LRD) for a 10-year planning permission, on a site which extends to 5.37 ha on lands located at Knocknacarra, Galway.

The proposed development will consist of the following:

1. Provision of 362 no. residential units in 4 no. development areas with a mix of apartment and house types on a site area of 5.37 ha. The buildings range between 2 no. and 6 no. storeys in height. The development will comprise the following:
 - 4 no. 2-bed townhouses;
 - 40 no. 3-bed townhouses;
 - 21 no. 4-bed townhouses;
 - 15 no. 1-bedroom duplex apartments;
 - 46 no. 2-bedroom duplex apartments;
 - 15 no. 2-bedroom duplex houses;
 - 46 no. 3-bedroom duplex houses;
 - 114 no. 1-bedroom apartments;
 - 56 no. 2-bedroom apartments;
 - 5 no. 3-bedroom apartments.
2. Demolition of existing structures (333.8 sqm);
3. Vehicular access to the proposed development from a permitted road (Planning Reference 24/60370 refers);
4. The provision of new active travel cycle and pedestrian access from Millers Lane;
5. Upgrades to the existing access at Kingston Road
6. The provision of a childcare facility (440 sq.m.);
7. The provision of public open space;
8. The provision of 665 no. bicycle parking spaces;

9. The provision of 313 no. car parking spaces;
10. Public lighting, bin stores, signage, services, ESB substation, site landscaping and all ancillary site development and enabling works.

An Environmental Impact Assessment (EIAR) and Natura Impact Statement (NIS) have been prepared in respect of the proposed development

Refer to the drawings that accompany this document for the site layout details.

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2. FLOOD RISK MANAGEMENT GUIDANCE

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This Stage 2 Flood Risk Assessment was carried out in accordance with the following flood risk management guidance documents:

- The Planning System and Flood Risk Management Guidelines for Planning Authorities
- Flood Risk Management Climate Change Sectoral Adaptation Plan
- Galway City Development Plan (2023 – 2029)
- Galway City SFRA (2023 - 2029)

2.1 THE PLANNING SYSTEM AND FLOOD RISK MANAGEMENT GUIDELINES

The Planning System and Flood Risk Management Guidelines for Planning Authorities (PSFRM Guidelines) were published in 2009 by the Office of Public Works (OPW) and Department of the Environment, Heritage, and Local Government (DoEHLG). Their aim is to ensure that flood risk is considered in development proposals and the assessment of planning applications.

2.1.1 Flood Zones and Vulnerability Classes

The PSFRM Guidelines discuss flood risk in terms of three flood zones (A, B, and C), which correspond to areas of high, medium, or low probability of flooding, respectively. The extents of each flood zone are based on the Annual Exceedance Probability (AEP) of various flood events.

The PSFRM Guidelines also categorise different types of development into three vulnerability classes based on their sensitivity to flooding. The guidelines classify residential properties and substations as “highly vulnerable” and are therefore considered appropriate in Flood Zone C (less than 0.1% AEP), whereas childcare facilities are classified as “less vulnerable” and are therefore appropriate in Flood Zone B (between 0.1 and 1% AEP).

Table 2.11 shows a decision matrix that indicates which types of development are appropriate in each flood zone and when the Justification Test (see Section 2.1.2) must be satisfied. The annual exceedance probabilities used to define each flood zone are also provided.

Table 2.11: Decision Matrix for Determining the Appropriateness of a Development

Flood Zone: (Probability)	Annual Exceedance Probability (AEP)	Highly Vulnerable	Less Vulnerable	Water Compatible
A (High)	<u>Coastal Flooding</u> More frequent than 0.5% AEP	Justification Test Required	Justification Test Required	Appropriate
	<u>Fluvial & Pluvial Flooding</u> More frequent than 1% AEP			
B (Medium)	<u>Coastal Flooding</u> 0.1% to 0.5% AEP	Justification Test Required	Appropriate	Appropriate
	<u>Fluvial & Pluvial Flooding</u> 0.1% to 1% AEP			
C (Low)	<u>Fluvial, Pluvial & Coastal Flooding</u> Less frequent than 0.1% AEP	Appropriate	Appropriate	Appropriate



2.1.2

2.1.2 Justification Test

Any proposed development being considered in an inappropriate flood zone (as determined by Table 2.11) must satisfy the criteria of the Justification Test outlined in Figure 2-11 (taken from the PSFRM Guidelines).

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Box 5.1 Justification Test for development management (to be submitted by the applicant)

When considering proposals for development, which may be vulnerable to flooding, and that would generally be inappropriate as set out in Table 3.2, the following criteria must be satisfied:

1. The subject lands have been zoned or otherwise designated for the particular use or form of development in an operative development plan, which has been adopted or varied taking account of these Guidelines.
2. The proposal has been subject to an appropriate flood risk assessment that demonstrates:
 - (i) The development proposed will not increase flood risk elsewhere and, if practicable, will reduce overall flood risk;
 - (ii) The development proposal includes measures to minimise flood risk to people, property, the economy and the environment as far as reasonably possible;
 - (iii) The development proposed includes measures to ensure that residual risks to the area and/or development can be managed to an acceptable level as regards the adequacy of existing flood protection measures or the design, implementation and funding of any future flood risk management measures and provisions for emergency services access; and
 - (iv) The development proposed addresses the above in a manner that is also compatible with the achievement of wider planning objectives in relation to development of good urban design and vibrant and active streetscapes.

The acceptability or otherwise of levels of residual risk should be made with consideration of the type and foreseen use of the development and the local development context.

Note: See section 5.27 in relation to major development on zoned lands where sequential approach has not been applied in the operative development plan.

Refer to section 5.28 in relation to minor and infill developments.

Figure 2-11: Criteria of the Justification Test



2.2 THE FLOOD RISK MANAGEMENT CLIMATE ADAPTION PLAN

The Flood Risk Management Climate Change Sectoral Adaptation Plan was published in 2019 under the National Adaptation Framework and Climate Action Plan. This plan outlines the OPW’s approach to climate change adaptation in terms of flood risk management.

This approach is based on a current understanding of the potential impacts of climate change on flooding and flood risk. Research has shown that climate change is likely to worsen flooding through more extreme rainfall patterns, more severe river flows, and rising mean sea levels.

To account for these changes, the Adaptation Plan presents two future flood risk scenarios to consider when assessing flood risk:

- Mid-Range Future Scenario (MRFS)
- High-End Future Scenario (HEFS)

Table 2.22 indicates the allowances that should be added to estimates of extreme rainfall depths, peak flood flows, and mean sea levels for the future scenarios.

Table 2.22: Climate Change Adaptation Allowances for Future Flood Risk Scenarios

Parameter	Mid-Range Future Scenario (MRFS)	High-End Future Scenario (HEFS)
Extreme Rainfall Depths	+ 20%	+ 30%
Peak River Flood Flows	+ 20%	+ 30%
Mean Sea Level Rise	+ 0.5 m	+ 1 m

For the purpose of this flood risk assessment, the proposed development has been assessed against the Mid-Range Future Scenario as it represents a likely future scenario.



2.3 GALWAY CITY DEVELOPMENT PLAN (2023 – 2029)

The Current Galway City Development Plan¹ provides a strategic framework for planning and sustainable development in Co. Galway for 2023-2029. The Galway City Development Plan (GCDP) for 2023-2029 was adopted by the Elected Members of Galway City Council at the conclusion of the Special Meeting on 24th November 2022 and it came into effect on the 4th January 2023.

Chapter 9 of the Galway City Development Plan 2023-2029 outlines the City plan for Environment and Infrastructure. Section 9.2 of the Galway City Development Plan discusses Flood Risk Management for the City.

Flood Risk Policies for Galway City are as follows:

1. Support, in co-operation with the OPW, the implementation of EU Flood Risk Directive (2007/60/EC), the Flood Risk Regulations (SI No, 122 of 2010) and the DECLG and OPW Guidelines for Planning Authorities, the Planning System and Flood Risk Assessment Management (2009), updated/superseding legislation or departmental guidelines and have regard to the findings and relevant identified actions of the Corrib Catchment Flood Risk Management (CFRAM) Study.
2. Support and facilitate the implementation of the Coirib go Cósta Galway City Flood Relief Scheme in conjunction with the OPW to support a climate resilient city, protect against flooding and minimise the impact of future climate events. Support in general the associated mitigation and adaptation measures in order to prevent flooding and coastal erosion, subject to appropriate environmental, visual, built heritage and other relevant considerations.
3. Ensure the recommendations of the Strategic Flood Risk Assessment (SFRA) for the Galway City Development Plan 2023-2029 are taken into consideration in the assessment of developments in identified areas of flood risk and require site specific Flood Risk Assessment (FRA) and associated design and construction measures appropriate to the scale and nature of the development and the risks arising, in all areas of identified flood risk including on sites where only small proportion of the site is at risk of flooding and adopt a sequential approach in accordance with the Planning System and Flood Risk Management Guidelines for Planning Authorities (2009).
4. Protect and promote sustainable management and uses of water bodies and watercourses from inappropriate development, including rivers, streams, associated undeveloped riparian strips, wetlands and natural floodplains.
5. Ensure flood risk is incorporated into the preparation of any future local area plans, framework plans and masterplans in the city.
6. Ensure any proposed measure designed to alleviate flooding/coastal erosion is subject to Appropriate Assessment in accordance with Article 6 of the EU Habitats Directive, where appropriate.
7. Continue to protect the coastal area and the foreshore and avoid inappropriate development in areas at risk of coastal erosion and/or would cause and escalate coastal erosion in adjoining areas.

¹ <https://www.galwaycity.ie/development-plan-2023-2029>



8. Protect and maintain, where feasible, undeveloped riparian zones and natural floodplains along the River Corrib and its tributaries.

The Galway City Development Plan zones the subject site as “residential” and “Enterprise, Light Industry and Commercial” as seen in Figure 2-22. The development is appropriate with this zoning.

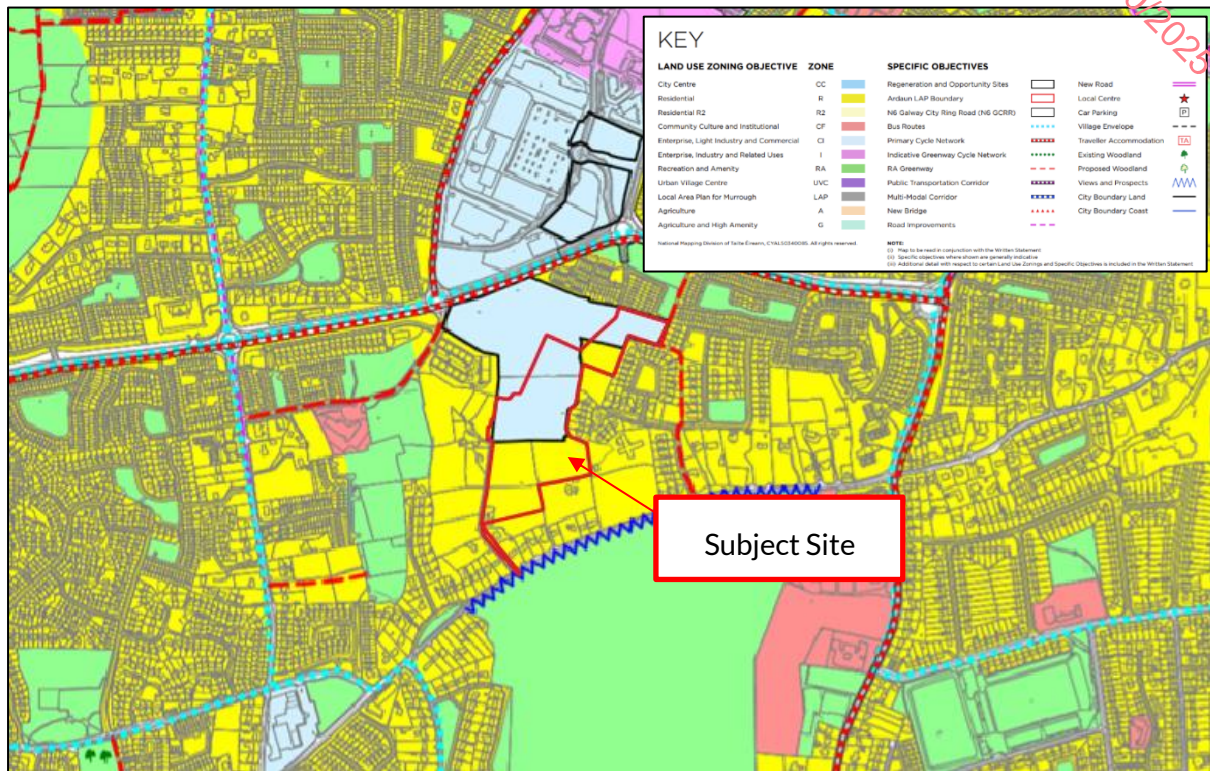


Figure 2-22: Galway City Development Plan Map A - Land Use Zoning



2.4 GALWAY CITY SFRA (2023 – 2029)

The subject site is within the study area of the Galway City Strategic Flood Risk Assessment (2023 – 2029). As seen in Figure 2-33, the subject site is not seen to be in Flood Zone A or B and is therefore located in Flood Zone C.

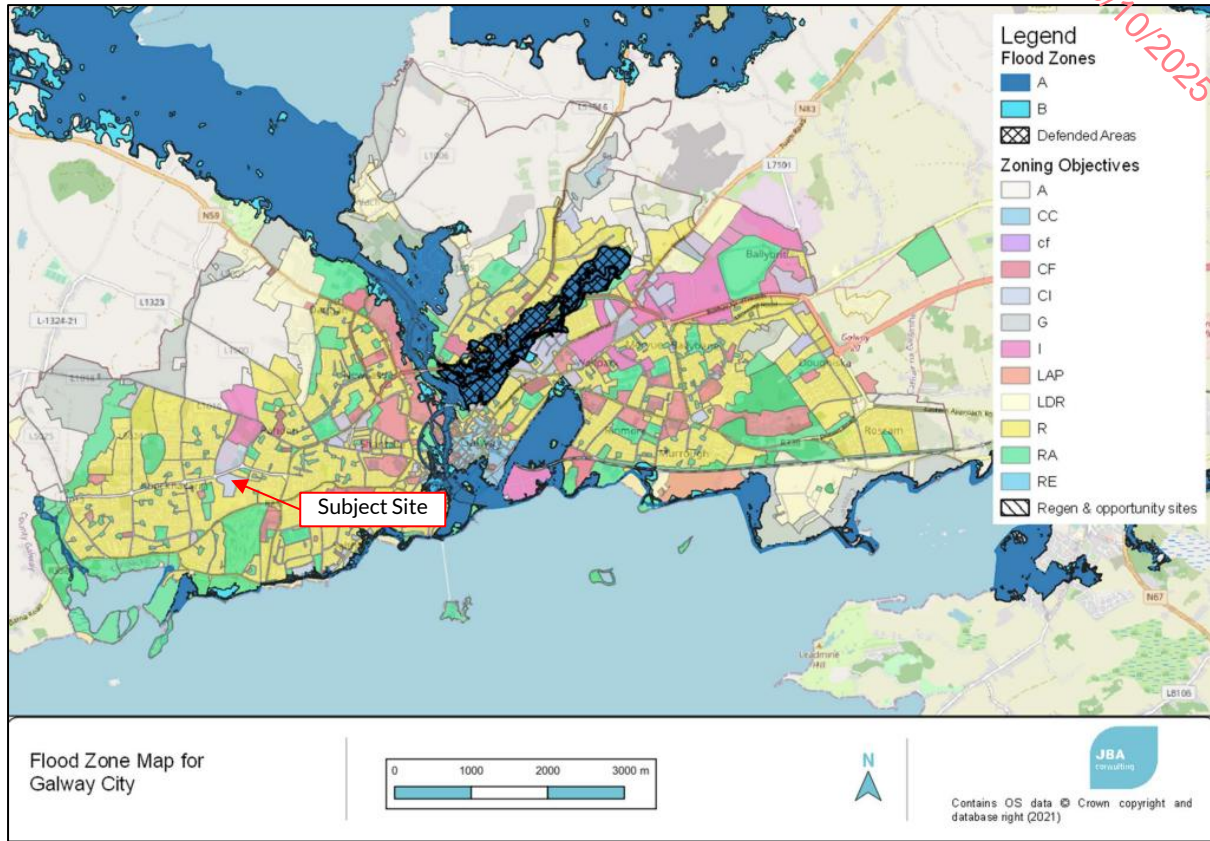


Figure 2-33: Galway City SFRA Flood Zone Mapping



3. INITIAL FLOOD RISK ASSESSMENT

3.1 PAST FLOOD EVENTS

The OPW's National Flood Information Portal² provides past flood event mapping with records of flooding reports, meeting minutes, photos, and/or hydrometric data. Based on the flood map shown in Figure 3-11, there are no historical flood events recorded in the vicinity of the subject site. The closest past flood events to the subject site are located approximately 1.75km southeast of the subject site and the flood labelled (ID: 13235) occurred in December 2015. This event is located on the coast and is as a result of coastal flooding. There are multiple other flood events in the vicinity of the above-mentioned flood event, all as a result of coastal flooding. There is no hydraulic link between the subject site and the past flood event

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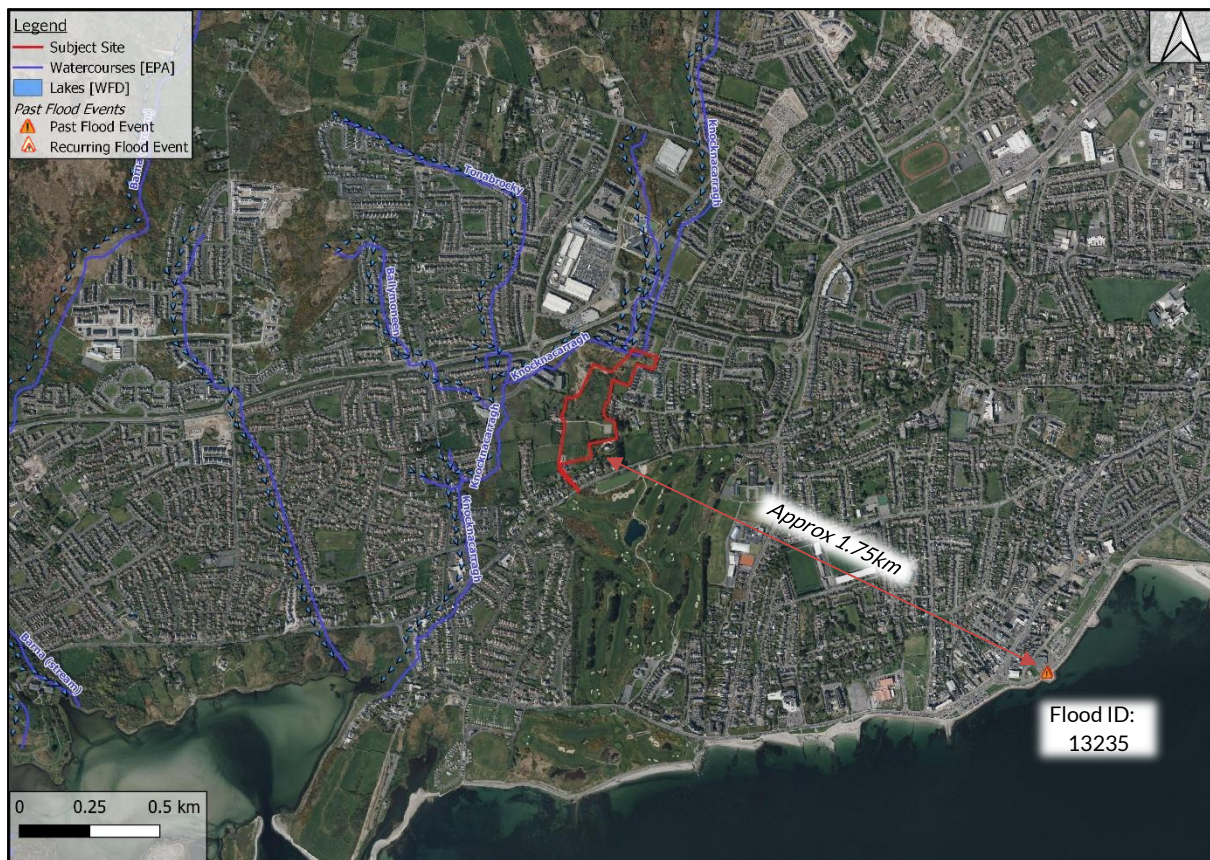


Figure 3-11: Past Flood Events

² floodinfo.ie



3.2 OPW PRELIMINARY FLOOD RISK ASSESSMENT (PFRA) STUDY

In 2009, the OPW produced a series of maps to assist in the development of a broad-scale FRA throughout Ireland. These maps were produced from several sources.

The OPW's National Preliminary Flood Risk Assessment (PFRA) Overview Report from March 2012 noted that *"the flood extents shown on these maps are based on broad-scale simple analysis and may not be accurate for a specific location"*.

Figure 3-22 provides an overview of the fluvial, coastal, pluvial, and groundwater indicative flood extents in the vicinity of the subject site.

As per Figure 3-22, the subject site is not predicted to be liable to coastal, fluvial or groundwater flooding during extreme events. The PFRA mapping indicates one area of pluvial flooding within the subject site. Pluvial flooding is noted in the centre of the subject site. A review of the topographical survey shows that the pluvial flooding in the centre of the site is around an existing drain.

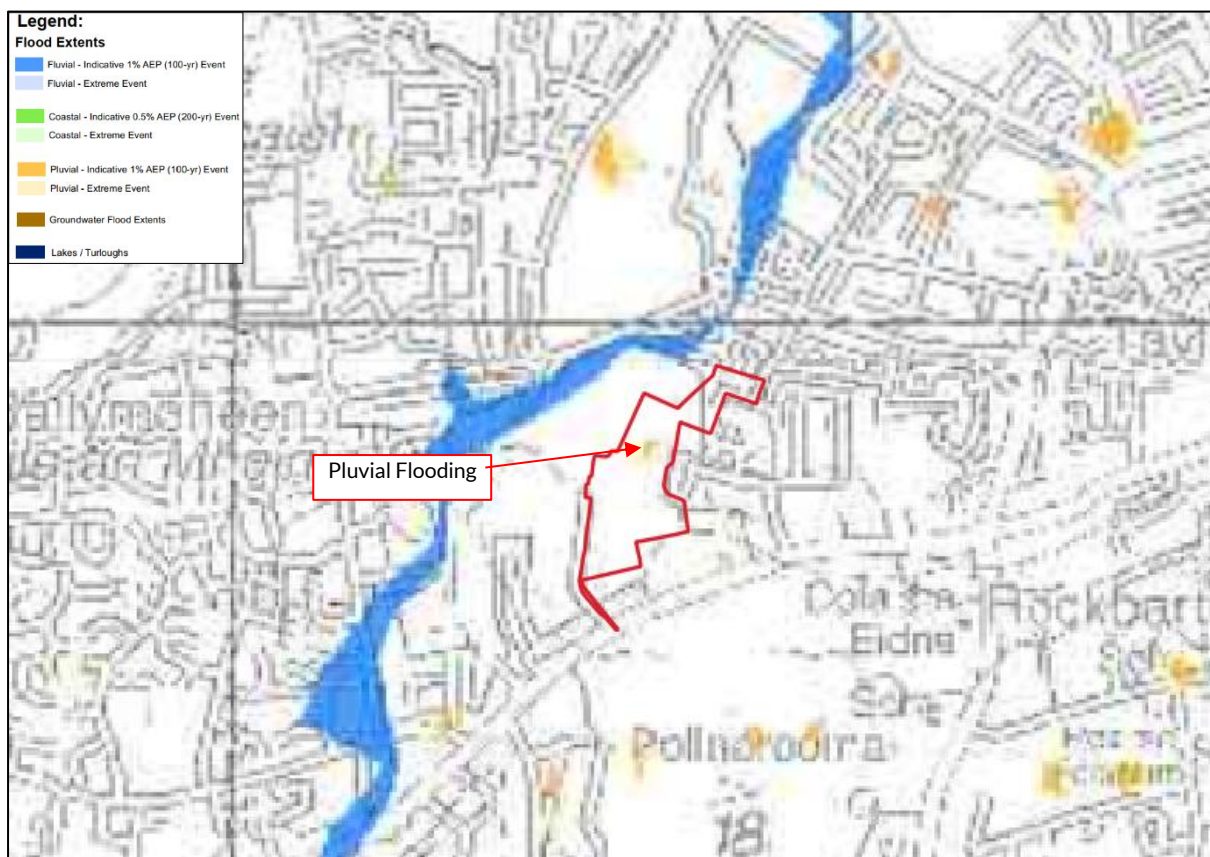


Figure 3-22: Indicative Flood Mapping [extract from PFRA Map 209 & 226]





Figure 3-33: PFRA Fluvial Flood Extents

Figure 3-33 shows that the subject site is not at risk of fluvial flooding. Fluvial flood extents are noted just northwest of the subject site.

There are no coastal or groundwater flood extents within the subject site.

Limitations on potential sources of error associated with the PFRA maps include:

- Assumed channel capacity (due to absence of channel survey information)
- Absence of flood defences and other drainage improvements and channel structures (bridges, weirs, culverts)
- Local errors in the national Digital Terrain Model (DTM)

Improved hydraulic modelling was carried out through the Catchment Flood Risk Assessment and Management Study (CFRAM) in 2015 (discussed in Section 3.4) and is considered more accurate than the PFRA study as it utilised surveyed river geometry and was subject to greater model calibration.



3.3 NATIONAL COASTAL FLOOD HAZARD MAPPING (NCFHM)

The National Coastal Flood Hazard Mapping (NCFHM) was completed in 2021. The aim of the project is to produce updated national scale coastal flood extent and depth maps for the 50%, 20%, 10%, 5%, 2%, 1%, 0.5% and 0.1% Annual Exceedance Probabilities (AEPs) for the present day scenario and for the Mid-Range Future Scenario (MRFS), High End Future Scenario (HEFS), High+ End Future Scenario (H+EFS) and High++ End Future Scenario (H++EFS) which represent a 0.5m, 1.0m, 1.5m and 2.0m increase in sea level respectively. The mapping is based on the extreme levels calculated in the Irish Coastal Wave and Water Level Modelling Study (ICWWS).

The Irish Coastal Wave and Water Level Modelling Study (ICWWS) was undertaken in 2018³. The study provides an update to the Extreme Coastal Water Levels for the coastal of Ireland. The study provides an update to the water levels presented in the ICPSS undertaken between 2004 and 2013. The Irish Coastal Protection Strategy Study (ICPSS) was a national study that was commissioned in 2003 with the objective of providing information to support decision making about how best to manage risks associated with coastal flooding and coastal erosion.⁴

Figure 3-44 and Table 3-11 below outlines the location of and extreme water levels at node W7 which is the closest ICWWS node to the subject site.



Figure 3-44: National Coastal Extreme Water Level Estimation Point W7 Location

³Irish Coastal Wave and Water Level Modelling Study(ICWWS)
[Microsoft Word - IBE1505 ICWWS Ph1 Rp01 F02.docx](#)

⁴<https://www.gov.ie/ga/foilsuichan/eed0fb-irish-coastal-protection-strategy-study-icpss/>

Table 3-11: ICWWS Modelled Extreme Water Levels

Return Period	Existing Scenario Water Level (mOD)	Mid-Range Future Scenario (MRFS) Water Level (mOD)
1 in 100-Year (1% AEP) Event	3.84	4.34
1 in 200-Year (0.5% AEP) Event	3.94	4.44
1 in 1,000-Year (0.1% AEP) Event	4.18	4.68

A topographical survey of the north section of the subject site shows minimum ground levels of 25mOD, which provides a freeboard of over 20m between coastal 0.1% AEP Event water level and the proposed development.

3.4 CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

In 2015, the OPW produced flood maps as part of the Catchment Flood Risk Assessment and Management (CFRAM) Study. The flood extents in these maps are based on detailed modelling of Areas for Further Assessment identified by the National Preliminary Flood Risk Assessment.⁵ The watercourses in the vicinity of the subject site were not modelled as part of the CFRAM Study.

⁵ https://www.floodinfo.ie/about_frm/



3.5 OPW DRAINAGE DISTRICTS AND ARTERIAL DRAINAGE SCHEMES

The OPW Drainage Districts were carried out by the commissioners of Public Works under a number of drainage and navigation acts from 1842 to the 1930s to improve land for agriculture and to mitigate flooding.⁶ The local authorities are charged with the responsibility to maintain Drainage Districts.

Benefited lands are areas that were previously subject to poor drainage and/or flooding but that have benefited from the implementation of Arterial Drainage Schemes carried out under the Arterial Drainage Act 1945.

The subject site has not benefited from any arterial drainage scheme and is not located in a Drainage District. The Knocknacarra River is a Land Commission Watercourse as seen in Figure 3-55.

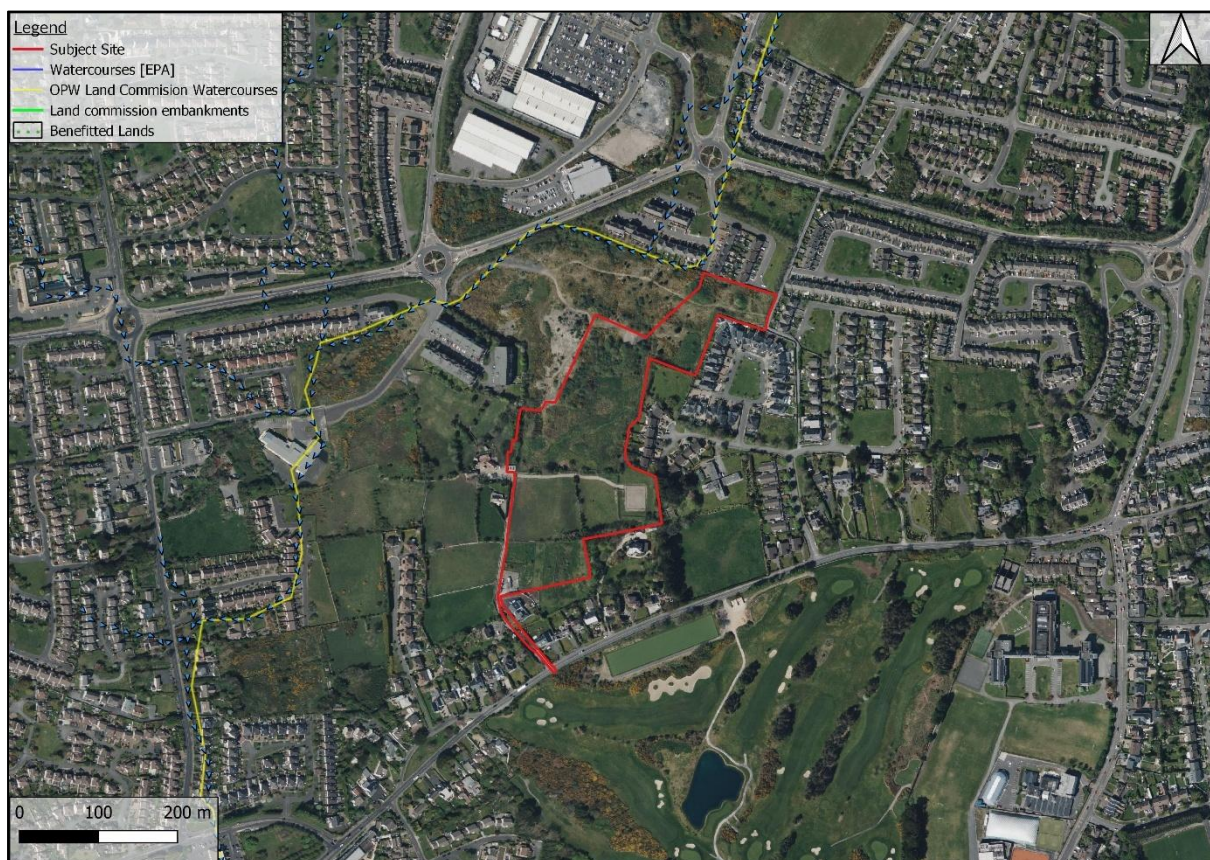


Figure 3-55 Arterial Drainage

⁶ www.floodinfo.ie



3.6 GEOLOGICAL SURVEY IRELAND MAPPING

Based on a review of the OPW’s Preliminary Flood Risk Assessment (PFRA) mapping (see Figure 3-22) there is no noted risk of groundwater flooding to the subject site.

GSI Groundwater Flooding Probability Maps⁷ for the subject site were reviewed. The closest recorded groundwater flood extent is approximately 5.6km northeast of the subject site. There is no hydraulic link between this event and the subject site.



Figure 3-66: GSI Mapping of Groundwater Flooding

The closest surface water flooding is approximately 2.9km Northeast of the site, assumed to be as a result of flooding from the River Corrib and is not expected to have any effect on the sites hydrology.

Geological Survey Ireland (GSI) subsurface mapping of karst features⁸ in the area show that there are no karst features located in the vicinity of the subject site (see Figure 3-77). The closest karst feature to the subject site is a swallow located 5.2km Northeast of the subject site.

⁷FloodInfo.ie | National Flood Information Portal, Available at: <https://www.floodinfo.ie/map/floodmaps/>

⁸GSI Groundwater Data Viewer, Available at: <https://dcnr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef>



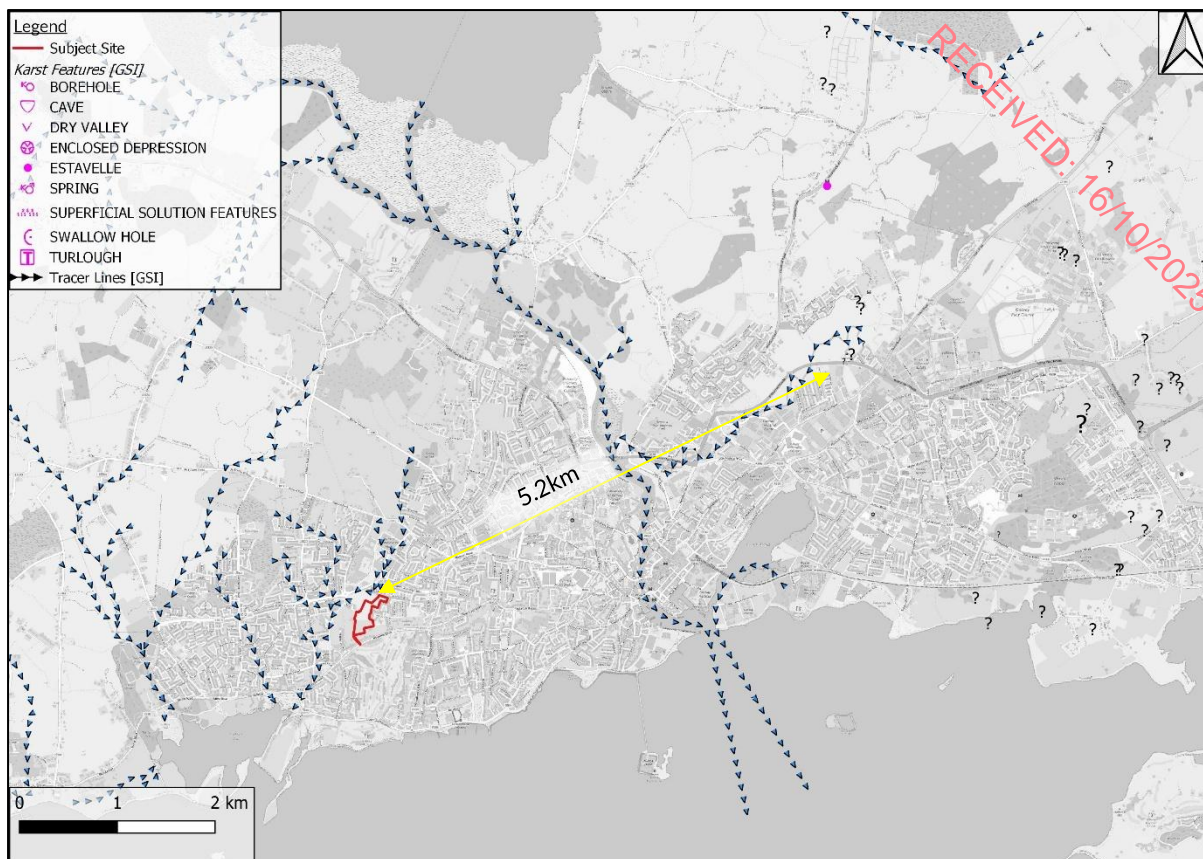


Figure 3-77: GSI Mapping of Karst Features



4. SITE VISIT FINDINGS

TOBIN conducted a site visit on 11th March 2024 to review site conditions and potential flood risk at the subject site. The area of particular interest for the site visit was the area where, on the mapping, a watercourse is located. Mapping shows the Knocknacarra watercourse flowing along the northern boundary of the subject site before flowing in a southerly direction to the west of the site.



Figure 4-11: View of subject site watercourse location facing northeast

During the site visit, no standing water was observed. No external water sources appeared to enter the site. The area designated as the Knocknacarra watercourse on EPA maps is dry, lacking any visible watercourse. This suggests that the Knocknacarra watercourse has been culverted, rendering the flood extents depicted in the OPW PFRA mapping inaccurate.

Within the site, a minor depression exists in the general vicinity of the mapped watercourse. However, this depression is insignificant in the context of the site's overall flat topography. No visible banks or inverts were observed.

A review of Uisce Éireann Stormwater mapping reveals a 1500mm diameter concrete culvert running parallel to the Western Distributor Road to the north and northwest of the site. This culvert likely receives surface water drainage from what was historically the Knocknacarra watercourse. Consequently, the PFRA mapping's indication of fluvial flooding at the site is inaccurate due to the absence of an open channel at the delineated location. Furthermore, the

culvert lies outside the site boundaries, and the proposed building will not impede surface water flow.

Surface water arising within the subject site will be managed by a dedicated stormwater drainage system. The landscaping and topography within the subject site will provide safe exceedance flow paths and prevent surface water ponding to minimise residual risks associated with an extreme flood event or a scenario where the stormwater drainage system becomes blocked.



Figure 4-22: View of subject site watercourse location facing south east

5. DETAILED FLOOD RISK ASSESMENT

With reference to the PSFRM guidelines, the proposed development is comprised of 'highly vulnerable' (residential properties and substation), and 'less vulnerable' (childcare facilities) elements.

Therefore, residential properties and the ESB substation are considered appropriate in Flood Zone C (less frequently than the 0.1% AEP event), while the childcare facility is considered appropriate in Flood Zone B (between the 0.1% and 1% AEP event)

5.1 FLUVIAL FLOODING

There is one hydraulic feature seen on the mapping which is of particular interest to the subject site. The Knocknacarra watercourse flows just north of the subject site. From Available PFRA mapping the flood extents noted around the watercourse do not inundate any area within the subject site.

5.2 COASTAL FLOODING

The subject site is located approximately 1km inland from the sea and therefore it is estimated that the risk of coastal flooding associated with the development is minimal. The Topo survey of the subject site shows minimum ground levels of 25mOD, which provides a freeboard of over 20m between coastal 0.1% AEP Event extents and the proposed development.

5.3 PLUVIAL FLOODING

The PFRA indicative mapping indicates that there is one area of the subject site that may be at risk of pluvial flooding. The area of pluvial flooding is in the centre of the site.

Surface water arising on the proposed mixed-use development will be managed by a dedicated stormwater drainage system in accordance with Sustainable Drainage Systems (SuDS) principles, limiting discharge from the site to greenfield runoff rates.

The landscaping and topography of the developed site will provide safe exceedance flow paths and prevent surface water ponding to minimise residual risks associated with an extreme flood event or a scenario where the stormwater drainage system becomes blocked.

Therefore, it is estimated that risk of pluvial flooding associated with the proposed development is minimal.

5.4 GROUNDWATER FLOODING

Based on a review of Geological Survey Ireland (GSI) subsurface mapping of karst features (Figure 3-77), predicted groundwater flooding in the area (Figure 3-66), and the PFRA study (Figure 3-22), there is no evidence to suggest liability to groundwater flooding at the proposed development site.

5.5 THE JUSTIFICATION TEST

The proposed development is appropriately located in Flood Zone C with appropriate drainage measures; therefore, the Justification Test is not required.



6. CONCLUSIONS

TOBIN were appointed by Kingston Stables Ltd. to undertake a Flood Risk Assessment (FRA) for a proposed residential development at Kingston, Knocknacarra, Co. Galway.

With reference to the PSFRM guidelines, the proposed development is comprised of 'highly vulnerable' (residential properties and ESB substation) and 'less vulnerable' (childcare facilities) elements.

Fluvial Flooding

Based on a review of the available information, it was estimated that the subject site is not liable to fluvial flooding during any scenario. The Knocknacarra watercourse is the only watercourse in the vicinity of the site and its flood extents on the PFRA mapping do not inundate any of the subject site.

Therefore, the risk of fluvial flooding to the subject site is minimal.

Coastal Flooding

The subject site is not at risk of coastal flooding due to its distance inland from coastal waters.

Pluvial Flooding

The PFRA indicative mapping indicates that there is one area of the subject site that may be at risk of pluvial flooding. The area at risk is a depression and will be removed with the new development.

Surface water arising on the proposed mixed-use development will be managed by a dedicated stormwater drainage system in accordance with Sustainable Drainage Systems (SuDS) principles, limiting discharge from the site to greenfield runoff rates.

The landscaping and topography of the developed site will provide safe exceedance flow paths and prevent surface water ponding to minimise residual risks associated with an extreme flood event or a scenario where the stormwater drainage system becomes blocked.

Therefore, the risk of pluvial flooding to the subject site is minimal.

Groundwater Flooding

There is no evidence to suggest groundwater as a potential source of flood risk to the proposed subject site.

Justification Test

The proposed development is appropriately located in Flood Zone C; therefore, the Justification Test is not required.

Based on the results of this flood risk assessment, it is estimated that the risk of flooding to the proposed residential development will be minimal, and that the development will not increase the risk of flooding elsewhere. "Highly Vulnerable" residential properties and the ESB substation area appropriately located in Flood Zone C and with appropriate drainage design, the risk to the site from pluvial flooding will be minimal.



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Appendix A TOPOGRAPHIC SURVEY

RECEIVED: 16/10/2025



RECEIVED: 16/10/2025

Alton Apartments

Key

RECEIVED: 16/10/2025

RECEIVED: 16/10/2025



APPENDIX 8-2

LABORATORY REPORTS
SURFACE WATER

McCarthy Keville & O'Sullivan Ltd
2nd Floor
H91VW84
Tuam Road
Galway
Ireland



4225



Attention : Bébhinn Anders
Date : 1st October, 2025
Your reference : 240142-i
Our reference : Test Report 25/15388 Batch 1
Location : Knockinacarra
Date samples received : 18th September, 2025
Status : Final Report
Issue : 202510011320

Three samples were received for analysis on 18th September, 2025 of which three 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 9.557 kg of CO2

Scope 1&2&3 emissions - 22.585 kg of CO2

Authorised By:



Sean English
Project Coordinator

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 240142-i
Location: Knockinacarra
Contact: Bébhinn Anders
EMT Job No: 25/15388

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

RECEIVED: 16/10/2025

EMT Sample No.	1-8	9-16	17-24										
Sample ID	SW01	SW02	SW03										
Depth													
COC No / misc													
Containers	V H HN P BOD G	V H HN P BOD G	V H HN P BOD G										
Sample Date	17/09/2025 10:30	17/09/2025 11:20	17/09/2025 12:10										
Sample Type	Surface Water	Surface Water	Surface Water										
Batch Number	1	1	1										
Date of Receipt	18/09/2025	18/09/2025	18/09/2025										
										LOD/LOR	Units	Method No.	
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1								<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Acenaphthene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Fluorene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Anthracene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Fluoranthene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Pyrene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005	<0.005								<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	<0.173	<0.173								<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	<0.008								<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	82	89	86								<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #													
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	<5								<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1								<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	101	105	104								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	105	110	106								<0	%	TM15/PM10
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5								<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<10	<10	<10								<10	ug/l	TM5/PM16/PM30

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 240142-i
Location: Knockinacarra
Contact: Bébhinn Anders
EMT Job No: 25/15388

VOC Report : Liquid

RECEIVED: 18/10/2025

EMT Sample No.	1-8	9-16	17-24									
Sample ID	SW01	SW02	SW03									
Depth												
COC No / misc												
Containers	V H H N P BOD G	V H H N P BOD G	V H H N P BOD G									
Sample Date	17/09/2025 10:30	17/09/2025 11:20	17/09/2025 12:10									
Sample Type	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1									
Date of Receipt	18/09/2025	18/09/2025	18/09/2025									
										LOD/LOR	Units	Method No.
VOC MS												
Dichlorodifluoromethane	<2	<2	<2							<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1							<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3							<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3							<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3							<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1							<1	ug/l	TM15/PM10
Bromochloromethane #	<2 ⁺	<2 ⁺	<2 ⁺							<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3							<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2							<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2							<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5							<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1							<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2							<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1							<1	ug/l	TM15/PM10
Styrene	<2	<2	<2							<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2							<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1,1,2,2-Tetrachloroethane	<4	<4	<4							<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3							<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3							<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3							<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3							<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	101	105	104							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	105	110	106							<0	%	TM15/PM10

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 25/15388

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 35°C ±5°C.

Where Mineral Oil 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 overestimate 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 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.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

REVISED: 16/10/2025

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.
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	x2 Dilution
AB	x3 Dilution

RECEIVED: 16/10/2025

EMT Job No: 25/15388

RECEIVED
15/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	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/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	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	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
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	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM34	Turbidity by 2100P Turbidity Meter. complies with EPA 180.1 1993	PM0	No preparation is required.				
TM35	True and apparent colour by Hach Lange DR3800 spectrophotometer. Apparent colour includes dissolved and suspended matter. True colour is determined after filtration of the sample.	PM0	No preparation is required.				

EMT Job No: 25/15388

RECEIVED
15/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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			
TM37	Modified methods: TSS: USEPA 100.2 (1993), EN1072:2000 and APHA SMEWW 2540D:1999 22nd Edition; VSS: USEPA 1684 (Jan 2001), USEPA 160.4 (1971) and SMEWW 2540E:1999 22nd Edition. Gravimetric determination of Total Suspended Solids (TSS) and Volatile Suspended Solids (VSS). Sample is filtered through a 1.5µm pore size glass fibre filter and the resulting residue is dried and weighed at 105°C for TSS and 550°C for VSS.	PM0	No preparation is required.	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: 2013I	PM0	No preparation is required.	Yes			
TM57	Modified US EPA Method 410.4. (Rev. 2.0 1993) Comparable with ISO 15705:2002. Chemical Oxygen Demand is determined by hot digestion with Potassium Dichromate and measured spectrophotometrically.	PM0	No preparation is required.	Yes			
TM58	APHA SMEWW 5210B:1999 22nd Edition. Comparable with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as am	PM0	No preparation is required.				
TM58	APHA SMEWW 5210B:1999 22nd Edition. Comparable with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as am	PM0	No preparation is required.	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.	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.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 25/15388

RECEIVED
15/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.				

McCarthy Keville & O'Sullivan Ltd

2nd Floor
H91VW84
Tuam Road
Galway
Ireland



4225



Attention : Bébhinn Anders

Date : 7th October, 2025

Your reference : 240142- i

Our reference : Test Report 25/16144 Batch 1

Location : Knocknacarra

Date samples received : 30th September, 2025

Status : Final Report

Issue : 202510071445

Three samples were received for analysis on 30th September, 2025 of which three 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 9.557 kg of CO2

Scope 1&2&3 emissions - 22.585 kg of CO2

Authorised By:



Bruce Leslie

Project Manager

Please include all sections of this report if it is reproduced

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 240142- i
Location: Knocknacarra
Contact: Bébhinn Anders
EMT Job No: 25/16144

VOC Report : Liquid

RECEIVED: 10/10/2025

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-7,12	8-11,13-15,24	16-23								LOD/LOR	Units	Method No.
	Sample ID	SW01	SW02	SW03									
Depth													
COC No / misc													
Containers	V H H N B O D G P	V H P B O D G H N	V H H N P B O D G										
Sample Date	29/09/2025	29/09/2025	29/09/2025										
Sample Type	Surface Water	Surface Water	Surface Water										
Batch Number	1	1	1										
Date of Receipt	30/09/2025	30/09/2025	30/09/2025										
VOC MS													
Dichlorodifluoromethane	<2	<2	<2								<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1								<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1								<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3								<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3								<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3								<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1								<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3								<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2								<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5								<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2								<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3								<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2								<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2								<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5								<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2								<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2								<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2								<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2								<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1								<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2								<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1								<1	ug/l	TM15/PM10
Styrene	<2	<2	<2								<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2								<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,1,1,2,2-Tetrachloroethane	<4	<4	<4								<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3								<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3								<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3								<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2								<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3								<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	106	105	107								<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	101	101	102								<0	%	TM15/PM10

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 25/16144

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 35°C ±5°C.

Where Mineral Oil 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 overestimate 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 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.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

REVISED: 16/10/2025

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.
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

RECEIVED: 16/10/2025

EMT Job No: 25/16144

RECEIVED
15/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	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/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	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	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
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	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM34	Turbidity by 2100P Turbidity Meter. complies with EPA 180.1 1993	PM0	No preparation is required.				
TM35	True and apparent colour by Hach Lange DR3800 spectrophotometer. Apparent colour includes dissolved and suspended matter. True colour is determined after filtration of the sample.	PM0	No preparation is required.				

EMT Job No: 25/16144

RECEIVED
15/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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			
TM37	Modified methods TSS: USEPA 100.2 (1993), EN1072:2000 and APHA SMEWW 2540D:1999 22nd Edition; VSS: USEPA 1684 (Jan 2001), USEPA 160.4 (1971) and SMEWW 2540E:1999 22nd Edition. Gravimetric determination of Total Suspended Solids (TSS) and Volatile Suspended Solids (VSS). Sample is filtered through a 1.5µm pore size glass fibre filter and the resulting residue is dried and weighed at 105°C for TSS and 550°C for VSS.	PM0	No preparation is required.	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: 2013I	PM0	No preparation is required.	Yes			
TM57	Modified US EPA Method 410.4. (Rev. 2.0 1993) Comparable with ISO 15705:2002. Chemical Oxygen Demand is determined by hot digestion with Potassium Dichromate and measured spectrophotometrically.	PM0	No preparation is required.	Yes			
TM58	APHA SMEWW 5210B:1999 22nd Edition. Comparable with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as am	PM0	No preparation is required.				
TM58	APHA SMEWW 5210B:1999 22nd Edition. Comparable with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as am	PM0	No preparation is required.	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.	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.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 25/16144

RECEIVED
15/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.				

		Notes:					Round									
		nt	not tested	<LO	Below LOD	XX	> screen value									
		nc	no criteria	XX	Detection											
Test	Method	Units	LOD	MAC-EQS	No. of MAC-EQS Exceedances	Minimum (result above detection limit)	Mean	Maximum	No. of Samples	Surface Water Round 1			Surface Water Round 2			
										Sample ID	SW01	SW02	SW03	SW01	SW02	SW03
										Sample Type	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Date	17/09/2025	17/09/2025	17/09/2025	29/09/2025	29/09/2025	29/09/2025										
VOCs																
Benzene	TM15/PM10	µg/l	<0.5	1	0	0	-	0	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Bromobenzene	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
Bromochloromethane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
Bromodichloromethane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
Bromoforn	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
Bromomethane	TM15/PM10	µg/l	<1	nc	0	0	-	0	6	<1	<1	<1	<1	<1	<1	
n-Butylbenzene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
sec-Butylbenzene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
tert-Butylbenzene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
Carbon tetrachloride	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
Chlorobenzene	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
Chloroethane	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
Chloroform	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
Chloromethane	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
2-Chlorotoluene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
4-Chlorotoluene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
1,2-Dichlorobenzene	TM16/PM30	µg/l	<1	nc	0	0	-	0	6	<1	<1	<1	<1	<1	<1	
1,3-Dichlorobenzene	TM16/PM30	µg/l	<1	nc	0	0	-	0	6	<1	<1	<1	<1	<1	<1	
1,4-Dichlorobenzene	TM16/PM30	µg/l	<1	nc	0	0	-	0	6	<1	<1	<1	<1	<1	<1	
Dibromochloromethane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
1,2-Dibromo-3-chloropropane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
Dibromomethane	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
1,2-Dibromoethane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
Dichlorodifluoromethane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
1,1-Dichloroethane	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
1,2-Dichloroethane	TM15/PM10	µg/l	<2	3	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
1,1-Dichloroethene (1,1 DCE)	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
cis-1,2-Dichloroethene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
trans-1,2-Dichloroethene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
Dichloromethane (DCM)	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
1,2-Dichloropropane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
1,3-Dichloropropane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
2,2-Dichloropropane	TM15/PM10	µg/l	<1	nc	0	0	-	0	6	<1	<1	<1	<1	<1	<1	
1,1-Dichloropropene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
cis-1,3-Dichloropropene	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
trans-1,3-Dichloropropene	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
Ethylbenzene	TM15/PM10	µg/l	<1	nc	0	0	-	0	6	<1	<1	<1	<1	<1	<1	
Isopropylbenzene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
4-Isopropyltoluene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
Propylbenzene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
Styrene	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
1,1,1,2-Tetrachloroethane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
1,1,2,2-Tetrachloroethane	TM15/PM10	µg/l	<4	nc	0	0	-	0	6	<4	<4	<4	<4	<4	<4	
Tetrachloroethene (PCE)	TM15/PM10	µg/l	<3	10	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
Toluene	TM15/PM10	µg/l	<5	nc	0	0	-	0	6	<5	<5	<5	<5	<5	<5	
1,2,3-Trichlorobenzene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
1,2,4-Trichlorobenzene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
1,1,1-Trichloroethane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
1,1,2-Trichloroethane	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
Trichloroethene (TCE)	TM15/PM10	µg/l	<3	10	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
Trichlorofluoromethane	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
1,2,3-Trichloropropane	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
1,2,4-Trimethylbenzene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
1,3,5-Trimethylbenzene	TM15/PM10	µg/l	<3	nc	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
Vinyl Chloride	TM15/PM10	µg/l	<0.1	0.5	0	0	-	0	6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
m/p-Xylene	TM15/PM10	µg/l	<2	nc	0	0	-	0	6	<2	<2	<2	<2	<2	<2	
o-Xylene	TM15/PM10	µg/l	<1	nc	0	0	-	0	6	<1	<1	<1	<1	<1	<1	
Methyl Tertiary Butyl Ether	TM15/PM10	µg/l	<0.1	nc	0	0	-	0	6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Hexachlorobenzene	TM16/PM30	µg/l	<1	0.1	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
Hexachlorobutadiene	TM15/PM10	µg/l	<3	0.1	0	0	-	0	6	<3	<3	<3	<3	<3	<3	
Hexachlorocyclopentadiene	TM16/PM30	µg/l	<1	0.1	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
Phenols																
4-Chloro-3-methylphenol	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
2-Chlorophenol	TM16/PM30	µg/l	<1	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
2-Methylphenol	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
2,4-Dichlorophenol	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
2,4-Dimethylphenol	TM16/PM30	µg/l	<1	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
4-Methylphenol	TM16/PM30	µg/l	<1	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
2-Nitrophenol	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
4-Nitrophenol	TM16/PM30	µg/l	<10	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
Pentachlorophenol	TM16/PM30	µg/l	<1	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
Phenol	TM16/PM30	µg/l	<1	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
Phenol	TM26/PM0	mg/l	<0.01	nc	0	0	-	0	0	¶	¶	¶	¶	¶	¶	
2,4,6-Trichlorophenol	TM16/PM30	µg/l	<1	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	
2,4,5-Trichlorophenol	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	6	¶	¶	¶	¶	¶	¶	

RECEIVED: 16/10/2025

Notes:	
nt	not tested
nc	no criteria
<LOD	Below LOD
XX	Detection
XX	> screen value

Round	Surface Water Round 1			Surface Water Round 2		
	SW01	SW02	SW03	SW01	SW02	SW03
	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample ID						
Sample Type						
Sampled Date	17/09/2025	17/09/2025	17/09/2025	29/09/2025	29/09/2025	29/09/2025

Test	Method	Units	LOD	MAC-EQS	No. of MAC-EQS Exceedances	Minimum (result above detection limit)	Mean	Maximum	No. of Samples	17/09/2025	17/09/2025	17/09/2025	29/09/2025	29/09/2025	29/09/2025
Other SVOCs															
2-Chloronaphthalene	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
2-Nitroaniline	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
2,4-Dinitrotoluene	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
2,6-Dinitrotoluene	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
3-Nitroaniline	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
4-Bromophenylphenylether	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
4-Chloroaniline	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
4-Chlorophenylphenylether	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
4-Nitroaniline	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Azobenzene	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Buylbenzyl phthalate	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Bis(2-chloroethoxy)methane	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Bis(2-chloroethyl)ether	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Bis(2-ethylhexyl) phthalate	TM16/PM30	µg/l	<5	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Carbazole	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Dibenzofuran	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Diethyl phthalate	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Dimethyl phthalate	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Di-n-butyl phthalate	TM16/PM30	µg/l	<1.5	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Di-n-Octyl phthalate	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Hexachloroethane	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Isochlorone	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Nitrobenzene	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
Nitrosodi-n-propylamine	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt
2-Methylnaphthalene	TM16/PM30	µg/l	<1	nc	0	0	-	0	0	nt	nt	nt	nt	nt	nt

TPH CWG															
>C5-C8	TM36/PM12	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>C6-C8	TM36/PM12	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>C8-C10	TM36/PM12	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>C10-C12	TM5/PM16/PM30	µg/l	<5	nc	0	0	-	0	6	<5	<5	<5	<5	<5	<5
>C12-C16	TM5/PM16/PM30	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>C16-C21	TM5/PM16/PM30	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>C21-C35	TM5/PM16/PM30	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
Total aliphatics C5-35	TM36/PM12/PM16/	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>C5-EC7	TM36/PM12	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>EC7-EC8	TM36/PM12	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>EC8-EC10	TM36/PM12	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>EC10-EC12	TM5/PM16/PM30	µg/l	<5	nc	0	0	-	0	6	<5	<5	<5	<5	<5	<5
>EC12-EC16	TM5/PM16/PM30	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>EC16-EC21	TM5/PM16/PM30	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
>EC21-EC35	TM5/PM16/PM30	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
Total aromatics C5-35	TM36/PM12/PM16/	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10
Total aliphatics and aromatics(C5-35)	TM36/PM12/PM16/	µg/l	<10	nc	0	0	-	0	6	<10	<10	<10	<10	<10	<10

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APPENDIX 8-3

LABORATORY REPORTS
GROUNDWATER

McCarthy Keville & O'Sullivan Ltd
2nd Floor
H91VW84
Tuam Road
Galway
Ireland



4225



Attention : Monika Kabza
Date : 4th August, 2025
Your reference : 240142-C
Our reference : Test Report 25/12042 Batch 1
Location : Knocknacarra King Construction
Date samples received : 23rd July, 2025
Status : Final Report
Issue : 202508041054

Three samples were received for analysis on 23rd July, 2025 of which three 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 8.471 kg of CO2

Scope 1&2&3 emissions - 20.019 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Client Name: McCarthy Keville & O'Sullivan Ltd
 Reference: 240142-C
 Location: Knocknacarra King Construction
 Contact: Monika Kabza
 EMT Job No: 25/12042

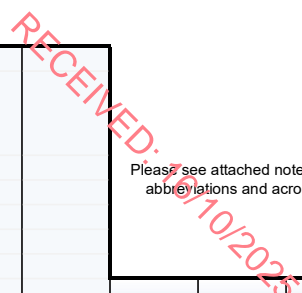
SVOC Report : Liquid

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EMT Sample No.	1-8	9-16	17-24										
Sample ID	BH01	BH26	BH25										
Depth													
COC No / misc													
Containers	V H H N N P G	V H H N N P G	V H H N N P G										
Sample Date	21/07/2025 12:30	21/07/2025 13:00	21/07/2025 13:45										
Sample Type	Ground Water	Ground Water	Ground Water										
Batch Number	1	1	1										
Date of Receipt	23/07/2025	23/07/2025	23/07/2025										
										LOD/LOR	Units	Method No.	
SVOC MS													
Phenols													
2-Chlorophenol #	<1	<1	<1							<1	ug/l	TM16/PM30	
2-Methylphenol #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
2-Nitrophenol	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
2,4-Dichlorophenol #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
2,4-Dimethylphenol	<1	<1	<1							<1	ug/l	TM16/PM30	
2,4,5-Trichlorophenol #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
2,4,6-Trichlorophenol	<1	<1	<1							<1	ug/l	TM16/PM30	
4-Chloro-3-methylphenol #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
4-Methylphenol	<1	<1	<1							<1	ug/l	TM16/PM30	
4-Nitrophenol	<10	<10	<10							<10	ug/l	TM16/PM30	
Pentachlorophenol	<1	<1	<1							<1	ug/l	TM16/PM30	
Phenol	<1	<1	<1							<1	ug/l	TM16/PM30	
PAHs													
2-Chloronaphthalene #	<1	<1	<1							<1	ug/l	TM16/PM30	
2-Methylnaphthalene #	<1	<1	<1							<1	ug/l	TM16/PM30	
Phthalates													
Bis(2-ethylhexyl) phthalate	<5	<5	<5							<5	ug/l	TM16/PM30	
Butylbenzyl phthalate	<1	<1	<1							<1	ug/l	TM16/PM30	
Di-n-butyl phthalate #	<1.5	<1.5	<1.5							<1.5	ug/l	TM16/PM30	
Di-n-Octyl phthalate	<1	<1	<1							<1	ug/l	TM16/PM30	
Diethyl phthalate #	<1	<1	<1							<1	ug/l	TM16/PM30	
Dimethyl phthalate	<1	<1	<1							<1	ug/l	TM16/PM30	
Other SVOCs													
1,2-Dichlorobenzene #	<1	<1	<1							<1	ug/l	TM16/PM30	
1,2,4-Trichlorobenzene #	<1	<1	<1							<1	ug/l	TM16/PM30	
1,3-Dichlorobenzene #	<1	<1	<1							<1	ug/l	TM16/PM30	
1,4-Dichlorobenzene #	<1	<1	<1							<1	ug/l	TM16/PM30	
2-Nitroaniline	<1	<1	<1							<1	ug/l	TM16/PM30	
2,4-Dinitrotoluene #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
2,6-Dinitrotoluene	<1	<1	<1							<1	ug/l	TM16/PM30	
3-Nitroaniline	<1	<1	<1							<1	ug/l	TM16/PM30	
4-Bromophenylphenylether #	<1	<1	<1							<1	ug/l	TM16/PM30	
4-Chloroaniline	<1	<1	<1							<1	ug/l	TM16/PM30	
4-Chlorophenylphenylether #	<1	<1	<1							<1	ug/l	TM16/PM30	
4-Nitroaniline	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
Azobenzene #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
Bis(2-chloroethoxy)methane #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
Bis(2-chloroethyl)ether #	<1	<1	<1							<1	ug/l	TM16/PM30	
Carbazole #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
Dibenzofuran #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
Hexachlorobenzene #	<1	<1	<1							<1	ug/l	TM16/PM30	
Hexachlorobutadiene #	<1	<1	<1							<1	ug/l	TM16/PM30	
Hexachlorocyclopentadiene	<1	<1	<1							<1	ug/l	TM16/PM30	
Hexachloroethane #	<1	<1	<1							<1	ug/l	TM16/PM30	
Isophorone #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
N-nitrosodi-n-propylamine #	<0.5	<0.5	<0.5							<0.5	ug/l	TM16/PM30	
Nitrobenzene #	<1	<1	<1							<1	ug/l	TM16/PM30	
Surrogate Recovery 2-Fluorobiphenyl	124	122	124							<0	%	TM16/PM30	
Surrogate Recovery p-Terphenyl-d14	138 ^{SV}	131 ^{SV}	130							<0	%	TM16/PM30	

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 240142-C
Location: Knocknacarra King Construction
Contact: Monika Kabza
EMT Job No: 25/12042

VOC Report : Liquid



EMT Sample No.	1-8	9-16	17-24							LOD/LOR	Units	Method No.
	Sample ID	BH01	BH26	BH25								
Depth												
COC No / misc												
Containers	V H H N P G	V H H N P G	V H H N P G									
Sample Date	21/07/2025 12:30	21/07/2025 13:00	21/07/2025 13:45									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	23/07/2025	23/07/2025	23/07/2025									
Please see attached notes for all abbreviations and acronyms												
VOC MS												
Dichlorodifluoromethane	<2	<2	<2							<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1							<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<3	<3	<3							<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3							<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3							<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1							<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3							<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2							<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2							<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5							<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1							<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2							<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1							<1	ug/l	TM15/PM10
Styrene	<2	<2	<2							<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2							<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1,1,2,2-Tetrachloroethane	<4	<4	<4							<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3							<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3							<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3							<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3							<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	90	86	92							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	95	90	96							<0	%	TM15/PM10

Element Materials Technology

Notification of Deviating Samples

Client Name: McCarthy Keville & O'Sullivan Ltd
Reference: 240142-C
Location: Knocknacarra King Construction
Contact: Monika Kabza

RECEIVED: 16/10/2025

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 25/12042						

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.
It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 25/12042

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 35°C ±5°C.

Where Mineral Oil 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 overestimate 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 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.

Please include all sections of this report if it is reproduced

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

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.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

REVISED: 16/10/2025

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.
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

RECEIVED: 16/10/2025

EMT Job No: 25/12042

RECEIVED
15/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	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/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.	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 USEPA Method 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				

EMT Job No: 25/12042

RECEIVED
15/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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 USEPA Method 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	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			
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.				
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			
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.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				

McCarthy Keville & O'Sullivan Ltd
2nd Floor
H91VW84
Tuam Road
Galway
Ireland



4225



Attention : Monika Kabza
Date : 14th August, 2025
Your reference : 240142-i
Our reference : Test Report 25/12044 Batch 1
Location : Knocknacarra King Construction
Date samples received : 23rd July, 2025
Status : Final Report
Issue : 202508141532

Three samples were received for analysis on 23rd July, 2025 of which three 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 8.905 kg of CO2

Scope 1&2&3 emissions - 21.045 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: McCarthy Keville & O'Sullivan Ltd
 Reference: 240142-i
 Location: Knocknacarra King Construction
 Contact: Monika Kabza
 EMT Job No: 25/12044

VOC Report : Liquid

RECEIVED: 10/10/2025

EMT Sample No.	1-8	9-16	17-24							LOD/LOR	Units	Method No.
	Sample ID	BH08	BH19	BH02								
Depth										Please see attached notes for all abbreviations and acronyms		
COC No / misc												
Containers	V H H N N P G	V H H N N P G	V H H N N P G									
Sample Date	21/07/2025	21/07/2025	21/07/2025									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	23/07/2025	23/07/2025	23/07/2025									
VOC MS												
Dichlorodifluoromethane	<2	<2	<2							<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1							<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1							<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	4	5	<3							<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3							<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3							<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1							<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3							<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5							<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3							<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2							<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2							<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5							<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2							<2	ug/l	TM15/PM10
Dibromochloromethane	<2	<2	<2							<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2							<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2							<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1							<1	ug/l	TM15/PM10
m/p-Xylene #	<2	<2	<2							<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1							<1	ug/l	TM15/PM10
Styrene	<2	<2	<2							<2	ug/l	TM15/PM10
Bromoform	<2	<2	<2							<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane	<4	<4	<4							<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3							<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3							<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3							<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3							<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2							<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3							<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	85	91	99							<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	102	96	103							<0	%	TM15/PM10

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 25/12044

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 35°C ±5°C.

Where Mineral Oil 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 overestimate 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 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.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

REVISED: 16/10/2025

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.
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

RECEIVED: 16/10/2025

EMT Job No: 25/12044

RECEIVED
15/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	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/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.	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 USEPA Method 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				

EMT Job No: 25/12044

RECEIVED
15/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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 USEPA Method 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	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			
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: 2013	PM0	No preparation is required.				
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: 2013	PM0	No preparation is required.	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.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				

McCarthy Keville & O'Sullivan Ltd
2nd Floor
H91VW84
Tuam Road
Galway
Ireland



Attention : Monika Kabza
Date : 19th August, 2025
Your reference : 240142-1
Our reference : Test Report 25/10229 Batch 1
Location : Knocknacarra
Date samples received : 23rd June, 2025
Status : Final Report
Issue : 202508191012

Three samples were received for analysis on 23rd June, 2025 of which three 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.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 7.602 kg of CO2

Scope 1&2&3 emissions - 17.966 kg of CO2

Authorised By:



Sean English
Project Coordinator

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 25/10229

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 35°C ±5°C.

Where Mineral Oil 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 overestimate 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 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.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

REVISED: 16/10/2025

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.
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

RECEIVED: 16/10/2025

EMT Job No: 25/10229

RECEIVED
25/10/2025

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	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/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	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	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
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	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			

EMT Job No: 25/10229

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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			
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: 2013I	PM0	No preparation is required.				
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: 2013I	PM0	No preparation is required.	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.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				

RECEIVED 15/10/2025

Test	Method	Units	LOD	GTV / IGV	No. of GTV / IGV Exceedances	Minimum (result above detection limit)	Mean	Maximum	No. of Samples	Groundwater Round 1										
										Groundwater Round 1					Groundwater Round 2					
										Sample ID	BH25	BH19	BH01	BH01	BH26	BH25	BH08	BH19	BH02	
										Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	
										Sampled Date	17/06/2025	17/06/2025	17/06/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025	
Physicochemical																				
Apparent Colour	TM35/PM0	mg/l PCo	<15	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
BOD (Settled)	TM58/PM0	mg/l	<1	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
COD (Settled)	TM57/PM0	mg/l	<7	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Dissolved Oxygen	TM56/PM0	mg/l	<1	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Total Organic Carbon	TM60/PM0	mg/l	<2	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Total Suspended Solids	TM37/PM0	mg/l	<10	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Turbidity	TM34/PM0	NTU	<0.1	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
pH	TM73/PM0	pH units	<0.1	≥ 6.5 and ≤ 9.5	0	6.5	7.2	7.81	9	7.81	7.77	7.77	7.17	7.04	7.04	7.03	6.8	6.5	6.5	6.5
Electrical Conductivity @25C	TM76/PM0	µS/cm	<2	1875	0	405	715	961	9	961	755	876	669	949	670	444	705	405	405	405
Total Alkalinity as CaCO3	TM75/PM0	mg/l	<1	nc	0	86	196	292	9	214	156	212	230	238	86	226	108	108	108	108
Nutrients																				
Ortho Phosphate as P	TM39/PM0	mg/l	<0.03	0.035	0	0.03	0.03	0.03	9	<0.03	<0.03	<0.03	<0.03	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Ammoniacal Nitrogen as N	TM38/PM0	mg/l	<0.03	0.065	6	0.03	1.0	3.23	9	1.06	1.27	3.23	1.41	0.06	0.19	<0.03	1.09	0.03	0.03	0.03
Total Oxidised Nitrogen as N	TM39/PM0	mg/l	<0.2	nc	0	1.3	3.3	9.6	9	1.3	<0.2	<0.2	<0.2	9	3	5.6	<0.2	<0.2	<0.2	1.7
Nitrate as N	TM38/PM0	mg/l	<0.05	37.5	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Nitrite as N	TM39/PM0	mg/l	<0.006	0.375	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Ions, Anions and Inorganics																				
Fluoride	TM173/PM0	mg/l	<0.3	1	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Chloride	TM38/PM0	mg/l	<0.3	187.5	0	46.3	81	125	9	125	109.8	108.2	69.8	95.3	48.5	55.8	79.5	46.3	46.3	46.3
Free Cyanide	TM89/PM0	mg/l	<0.01	0.0375	0	0	-	0	9	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Cyanide	TM89/PM0	mg/l	<0.01	0.0375	0	0.02	0.02	0.02	9	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphate as SO4	TM38/PM0	mg/l	<0.5	187.5	0	14.9	31	53.6	9	53.6	34.1	43.2	21.4	45.1	20	14.9	21.8	19.9	19.9	19.9
Sulphide	TM107/PM0	mg/l	<0.01	187.5	0	0	-	0	9	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thiocyanate	TM107/PM0	mg/l	<0.02	nc	0	0	-	0	9	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Metals																				
Dissolved Aluminium	TM30/PM14	µg/l	<1.5	150	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Dissolved Antimony	TM30/PM14	µg/l	<2	nc	0	0	-	0	9	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dissolved Arsenic	TM30/PM14	µg/l	<2.5	7.5	0	3.1	4.2	4.8	9	4.8	<2.5	4.7	3.1	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Dissolved Barium	TM30/PM14	µg/l	<3	100	0	3	23	91	9	3	59	18	6	4	14	8	91	3	3	3
Dissolved Beryllium	TM30/PM14	µg/l	<0.5	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Dissolved Boron	TM30/PM14	µg/l	<12	750	0	22	86	186	9	186	61	144	81	152	37	22	44	45	45	45
Dissolved Cadmium	TM30/PM14	µg/l	<0.5	3.75	1	20.3	20	20.3	9	<0.5	<0.5	<0.5	<0.5	<0.5	20.3	<0.5	<0.5	<0.5	<0.5	<0.5
Dissolved Calcium	TM30/PM14	mg/l	<0.2	200	0	44.1	64	134.2	9	52.4	51.4	46.3	69.1	134.2	84.8	49.2	45	44.1	44.1	44.1
Dissolved Cobalt	TM30/PM14	µg/l	<0.1	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Total Dissolved Chromium	TM30/PM14	µg/l	<1.5	37.5	0	0	-	0	9	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Hexavalent Chromium	TM39/PM0	mg/l	<0.006	7.5	0	0	-	0	9	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Dissolved Copper	TM30/PM14	µg/l	<7	1500	0	0	-	0	9	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7
Total Dissolved Iron	TM30/PM14	µg/l	<20	200	3	22	358	1579	9	97	196	223	352	<20	<20	36	1579	22	22	22
Dissolved Lead	TM30/PM14	µg/l	<5	7.5	0	6	6	6	9	6	6	6	6	6	6	6	6	6	6	6
Dissolved Magnesium	TM30/PM14	mg/l	<0.1	50	0	3.8	10	17.8	9	17.8	14.4	12	7.6	15	5	3.8	11.8	4.8	4.8	4.8
Dissolved Manganese	TM30/PM14	µg/l	<2	50	6	7	881	3715	9	100	1247	264	517	38	1907	7	3715	44	44	44
Dissolved Mercury	TM30/PM14	µg/l	<1	0.75	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dissolved Molybdenum	TM30/PM14	µg/l	<0.2	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Dissolved Nickel	TM30/PM14	µg/l	<2	15	0	2	4.5	6	9	4	6	5	2	<2	4	<2	6	<2	<2	<2
Dissolved Phosphorus	TM30/PM14	µg/l	<0.7	0.035	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Dissolved Potassium	TM30/PM14	mg/l	<0.1	5	5	1.4	6.0	11.5	9	11.1	6.6	11.5	7.9	4.9	2.5	1.4	5.5	2.3	2.3	2.3
Dissolved Selenium	TM30/PM14	µg/l	<3	nc	0	0	-	0	9	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Dissolved Sodium	TM30/PM14	mg/l	<0.1	150	0	18.6	47	76	9	68.6	59.1	58.3	82.2	42.1	22.6	18.6	76	21.2	21.2	21.2
Dissolved Thallium	TM30/PM14	µg/l	<0.9	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Dissolved Vanadium	TM30/PM14	µg/l	<0.6	nc	0	0	-	0	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Dissolved Zinc	TM30/PM14	µg/l	<3	75	0	5	12	53	9	5	12	6	7	5	53	5	12	6	6	6
PAHs																				
Naphthalene	TM4/PM30	µg/l	<0.1	1	0	0	-	0	9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	TM4/PM30	µg/l	<0.005	nc	0	0	-	0	9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Acenaphthene	TM4/PM30	µg/l	<0.005	nc	0	0	-	0	9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluorene	TM4/PM30	µg/l	<0.005	nc	0	0	-	0	9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenanthrene	TM4/PM30	µg/l	<0.005	nc	0	0.005	0.01	0.02	9	0.02	0.005	0.017	0.006	0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Anthracene	TM4/PM30	µg/l	<0.005	10000	0	0	0	0	9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoranthene	TM4/PM30	µg/l	<0.005	nc	0	0.005	0.008	0.012	9	0.012	0.005	0.01	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Pyrene	TM4/PM30	µg/l	<0.005	nc	0	0.005	0.007	0.011	9	0.011	0.005	0.007	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Benzo(a)anthracene	TM4/PM30	µg/l	<0.005	nc	0	0	-	0	9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chrysene	TM4/PM30	µg/l	<0.005	nc	0	0	-	0	9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(b)fluoranthene	TM4/PM30	µg/l	<0.008	0.5	0															

Notes:				
nt	not tested	<LOD	Below LOD	> screen value
nc	no criteria	XX	Detection	

Round	Groundwater Round 1					Groundwater Round 2				
	BH25	BH19	BH01	BH01	BH26	BH25	BH08	BH19	BH02	
	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	
Sample ID										
Sample Type										
Sampled Date	17/06/2025	17/06/2025	17/06/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025	

Test	Method	Units	LOD	GTV / IGV	No. of GTV / IGV Exceedances	Minimum (result above detection limit)	Mean	Maximum	No. of Samples	x	x	x	x	x	x	x	x	x
Other SVOCs																		
2-Chloronaphthalene	TM16/PM30	µg/l	<1	nc	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Nitroaniline	TM16/PM30	µg/l	<1	nc	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dinitrotoluene	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dinitrotoluene	TM16/PM30	µg/l	<1	nc	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
3-Nitroaniline	TM16/PM30	µg/l	<1	nc	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Bromophenylphenylether	TM16/PM30	µg/l	<1	nc	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chloroaniline	TM16/PM30	µg/l	<1	nc	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chlorophenylphenylether	TM16/PM30	µg/l	<1	nc	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Nitroaniline	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Azobenzene	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Buylbenzyl phthalate	TM16/PM30	µg/l	<1	S	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethyl) methane	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-chloroethyl) ether	TM16/PM30	µg/l	<1	nc	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-ethylhexyl) phthalate	TM16/PM30	µg/l	<5	S	0	0	-	0	9	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbazole	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenzofuran	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diethyl phthalate	TM16/PM30	µg/l	<1	S	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dimethyl phthalate	TM16/PM30	µg/l	<1	S	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
Di-n-butyl phthalate	TM16/PM30	µg/l	<1.5	S	0	0	-	0	9	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Di-n-Octyl phthalate	TM16/PM30	µg/l	<1	S	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachloroethane	TM16/PM30	µg/l	<1	nc	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isothorone	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nitrobenzene	TM16/PM30	µg/l	<1	10	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nitrosodi-n-propylamine	TM16/PM30	µg/l	<0.5	nc	0	0	-	0	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylnaphthalene	TM16/PM30	µg/l	<1	nc	0	0	-	0	9	<1	<1	<1	<1	<1	<1	<1	<1	<1

TPH CWG																		
>C5-C8	TM36/PM12	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
>C6-C8	TM36/PM12	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
>C8-C10	TM36/PM12	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
>C10-C12	TM5/PM16/PM30	µg/l	<5	10	3	42	58	75	9	75	42	57	<5	<5	<5	<5	<5	<5
>C12-C16	TM5/PM16/PM30	µg/l	<10	10	4	80	1,608	2350	9	2350	2220	1780	<10	<10	<10	<10	<10	<10
>C16-C21	TM5/PM16/PM30	µg/l	<10	10	3	30	30	30	9	30	30	30	<10	<10	<10	<10	<10	<10
>C21-C35	TM5/PM16/PM30	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total aliphatics C5-35	TM36/PM12/PM16/1	µg/l	<10	10	4	80	1,674	2455	9	2455	2292	1867	<10	<10	<10	<10	<10	<10
>C5-EC7	TM36/PM12	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
>EC7-EC8	TM36/PM12	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
>EC8-EC10	TM36/PM12	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
>EC10-EC12	TM5/PM16/PM30	µg/l	<5	10	0	0	-	0	9	<5	<5	<5	<5	<5	<5	<5	<5	<5
>EC12-EC16	TM5/PM16/PM30	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
>EC16-EC21	TM5/PM16/PM30	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
>EC21-EC35	TM5/PM16/PM30	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total aromatics C5-35	TM36/PM12/PM16/1	µg/l	<10	10	0	0	-	0	9	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total aliphatics and aromatics(C5-35)	TM36/PM12/PM16/1	µg/l	<10	7.5	4	80	1,674	2455	9	2455	2292	1867	<10	<10	<10	<10	<10	<10

RECEIVED: 16/10/2025