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DUBLIN AIRPORT NORTH RUNWAY DEVELOPMENT

GROUNDWATER AND SURFACE WATER RISK ASSESSMENT AND REMEDIATION OPTIONS APPRAISAL

Prepared for: Roadbridge FCC JV



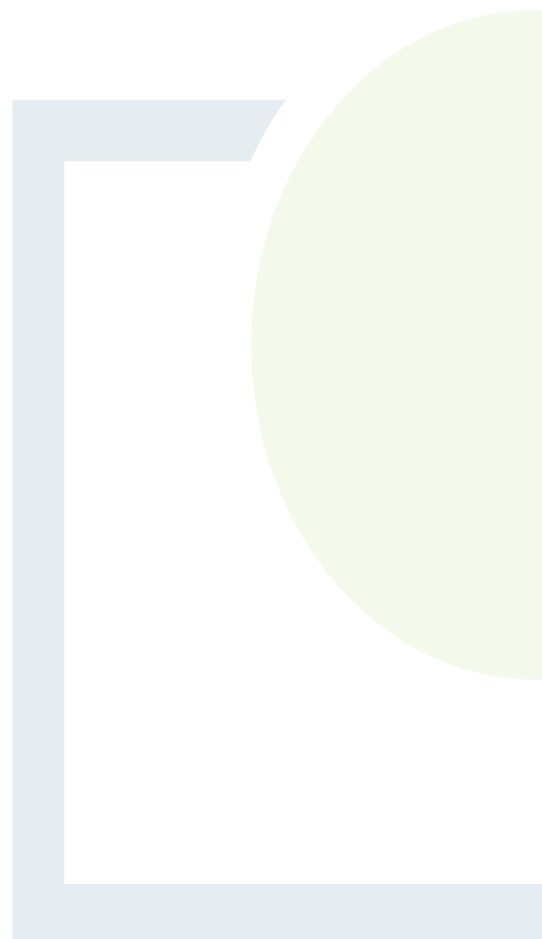
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Abstract: Fehily Timoney and Company (FT) was retained by the Roadbridge FCC JV to undertake a Risk Assessment on reported concentrations of PFAS contaminants in groundwater at the Dublin Airport, North Runway Development. This report presents the findings of the assessment undertaken to consider the risks posed to human health and controlled waters from the concentrations of PFAS contamination associated with the former use of the APEC 5 site as a Fire Training Ground. The findings of this assessment have been used to outline recommended monitoring following completion of the North Runway related construction works to monitor the residual risks posed to sensitive receptors at and adjacent to the site.

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1. INTRODUCTION

1.1 Project Background

The Roadbridge FCC (RBFCC) Joint Venture was commissioned by Dublin Airport Authority to construct the North Runway Development.

Fehily Timoney & Co. (FT) was retained by RBFCC to prepare a Risk Assessment report in relation to Per- and Polyfluoroalkyl substances (PFAS) in contaminated ground and surface waters at the former fire training facility at the Dublin Airport, North Runway Development.

The objective of this report is to assess the potential impacts to ground and surface waters at the site following the north runway development works and to outline recommended mitigation and remedial measures, if required, to reduce any on-going risks posed from PFAS contamination at the site.

As part of previous studies completed by FT at the site, monitoring and sampling of ground and surface waters were undertaken between January 2018 and October 2018. The findings and conclusions of this study are presented in the FT Report: *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment, November 2018*. In summary, this report confirmed that Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) contamination is present in the shallow bedrock groundwater and in surface streams on and off-site. Boreholes used to inform the 2018 studies were subsequently decommissioned during construction.

Subsequent to February 2020 additional monitoring at off-site surface water locations was carried out, the results of which are presented in this report.

The chemicals PFOS and PFOA have been identified as contaminants of emerging concern internationally.

The detected concentrations of Total PFOS at the off-site surface water monitoring points sampled between January 2018 and July 2021 exceeded the:

- 0.65 ng/l (the annual Average Environmental Quality Standards (EQS) for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015).

Compounds identified in off-site surface water monitoring points sampled between January 2018 and March 2021 contained:

- Other PFAS compounds at higher concentrations than PFOS and PFOA. The most abundant PFAS substance recorded was Fluorotelomer 6:2 FTS, a precursor for short chain perfluorinated carboxylic acids (PCFAs).
- Elevated concentrations of Perfluorobutyrate (PFBA), perfluorooctanoic acid (PFPA), Perfluoron-hexanoic acid (PFHxA) and perfluoro n-heptanoic acid (PFHpA).



Certificates of analyses are presented in:

- Appendix 11 (during construction)
- Appendix 13 (post construction)

Whilst laboratory certificates provide details of constituent compounds, the scope of this assessment is focused on the main regulated compounds of PFOS and PFOA.

A number of the groundwater monitoring locations during the period January 2018 and October 2018 exceeded the Total PFOS 0.07 µg/l threshold value (defined by the United States Environmental Protection Agency (USEPA) Drinking Water Advisories for PFOS and PFOA).

In addition to the identified impacts to ground and surface waters at the site, previous studies undertaken by FT at the Area No. 5 of Potential Concern (APEC 5) site identified residual concentrations of PFOS/PFOA compounds within shallow soils and bedrock in the North Runway development site boundary footprint at the former fire training ground.

Following removal of contaminated material, residual concentrations of PFOS and PFOA may be present in underlying soils and bedrock below the excavated APEC 5 footprint, which included the 'Cut' area in the footprint of the North Runway. In this excavated APEC 5 footprint area there was:

- A temporary stockpile of displaced material which was placed on top of the southern section of the APEC 5 area known to contain contaminated material.
- Stabilisation (105 m offset from runway centre line) and landscaping works which resulted in a reduced boulder clay cover. Post construction this may result in increased deep percolation inputs following rainfall which may mobilise underlying residual contamination as may be present in overburden, in bedrock and in groundwater.
- Construction of the P4 carrier filter drain adjacent to the APEC 5 area which may facilitate increased deep percolation inputs to groundwater, and which may mobilise underlying residual contamination as may be present in bedrock and in groundwater. The P4 filter drain may also under certain conditions show evidence of contamination in the event that the filter drain acts as a subsurface drain to the APEC 5 area.

Original surface drains adjacent to the APEC 5 location were left hydrologically unmodified and either filled with cohesive material adjacent to the APEC 5 area or in some areas removed from APEC 5 were lined with geotextile and backfilled with clean stone during construction to support localised surface drainage. All historic outfalls into watercourses external to the site were sealed with cohesive materials recovered from site (typically brown boulder clay), to prevent subsurface flows as may be present in old historic channels from the airport footprint discharging to surface water courses external to the site.

The original drains were all below the sub-formation level.



The assessment and management of the APEC 5 materials, which were excavated, stockpiled within the North Runway development site, and subsequently re-used as backfill around below ground surface water tanks are addressed in the following FT Reports:

- *Material Management Options Assessment for The Management For PFOS/PFOA Impacted Soils, January 2020.*
- *Material Management Design Report for The Management For PFOS/PFOA Impacted Soils, November 2020.*
- *DQRA Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment 2018.*

This report examines residual impacts of APEC 5 on ground and surface waters as may be present following removal of overburden APEC 5 materials from the historic fire training area and construction of the north runway.

1.2 PFAS/PFOS/PFOA Overview

The chemicals PFOS and PFOA belong to a large group of compounds called Per- and polyfluoroalkyl substances (PFAS). PFOS and PFOA are the most commonly encountered and understood PFAS compounds impacting the environment and wildlife (Giesy *et al* 2010).

It is understood that precursors may still exist in aqueous film forming foam (AFFF) formulations. There is currently insufficient data available to derive screening levels for other PFAS compounds.

All PFAS substances are highly persistent, bio-accumulative and potentially toxic to humans and to the environment (CONCAWE 2016). Research on the impacts of PFOS and PFOA on human health and on the environment is ongoing and, as such, there are limited published groundwater quality criteria for these contaminants.

Consideration was taken from the following legislative/guidance documents when preparing this risk assessment:

- United States Environmental Protection Agency (USEPA) Drinking Water Advisories for PFOS and PFOA.
- United States Protection Agency (USEPA) 2016: A Proposed Approach for the Development and Application of Guideline Values for Groundwater.
- European Communities, Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010).
- Interim Guideline Values (IGV) set out in the EPAs Groundwater *Towards Setting the Guideline Values for the Protection of Groundwater in Ireland*.
- Irish Drinking Water Regulations, 2007 (S.I. No. 278 of 2007).
- Water Quality (Dangerous Substances) Regulations, 2001 (S.I. No. 12 of 2001).
- Environment Agency (www.environment-agency.gov.uk) CLR11 Model Procedures for the Management of Land Contamination (withdrawn 8 October 2020 and replaced by web HTML with Land Contamination Risk Management (LCRM) <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>).



This report does not consider the Draft Directive of the European Parliament and of the Council on the Quality of Water Intended for Human Consumption (recast). This has a limit value of 0.1 µg/l for 'Sum of PFAS', which includes the sum of 20 No. per and polyfluoroalkyl substances considered a concern for water intended for human consumption. The listed legislative/guidance documents are more focused on the substances of concern for this assessment, Total PFOS and Total PFOA and are considered adequate to use.

1.3 Approach & Methodology

The objectives of this report are presented as follows:

Section 1 Introduction

Section 1 presents a description of the project, an overview of PFAS compounds and the approach and methodology used.

Section 2 Existing Geology and Hydrogeology

Section 2 describes the geology and hydrogeology the site and its connectivity to adjacent/proposed Natural Heritage Areas, and Special Area of Conservation / Special Protection Area according to the National Parks and Wildlife Services.

Section 3 Review of Previous Studies

Section 3 presents a summary overview of previous studies completed at the APEC 5 site.

Section 4 Overview of Construction Work

Section 4 presents an overview of construction works describing works (including monitoring) which were undertaken as required for the construction of the North Runway in the area of APEC 5. These works effectively resulted in partial source removal, partial capping and installation of new surface drainage systems.

To facilitate the completion of the risk assessment (presented in Section 5 of this report) additional sampling and monitoring of ground and surface waters was (and continues to be) undertaken, see Figure 2-1 for monitoring locations. To provide a reference datum for more recent monitoring results, Table 3-1 presents a summary of trial pit descriptions in the APEC 5 footprint prior to construction and Tables 3-2 to 3-6 present groundwater quality and groundwater elevation as of 2018. Results from groundwater sampling are presented in Table 4-6. Results from surface water sampling are presented in Table 4-7, and Figures 4-7 and 4-8. Figure 4-7 (PFOS) and Figure 4-8 (PFOA) present graphical overviews.

Since February 2020 RBFCC has taken:

- Groundwater samples from existing monitoring wells in and adjacent to the North Runway Development site boundary.
- Surface water samples from existing monitoring locations downstream and offsite from the APEC 5 footprint.



Section 5 Risk Assessment

Section 5 presents a retrospective risk assessment which provides: a summary overview of the impacts and on-going risks posed from historical PFOS and PFOA contaminations identified within ground and surface waters during previous studies, and an assessment of possible impacts and on-going risks following construction works associated with the northern runway.

Upon receipt of sampling results from monitoring events outlined above, the conceptual site models (CSMs) presented in Figure 5-1 and in Figure 5-3 prepared for previous studies were revised to graphically present the current conceptual understanding of the geological and hydrogeological conditions at the site after which, the risk assessment was completed to assess the on-going risk posed to receptors at the site including the identification of additional monitoring works on and removed from the airport site.

The risk assessment confirmed the need for further post construction monitoring to assess the effectiveness of the works undertaken in reducing environmental risk.

Although the primary focus of this assessment is existing groundwater contamination at the site, previous studies and FT's knowledge of the site also identified surface waters as a receptor for PFAS contamination. Prior to construction of the North Runway development the site had a very high drainage density such that a large proportion of the effective rainfall historically would have discharged to surface drains.

Based on the revised CSM for the site it is considered that rainfall inputs from the surrounding lands will, following vertical and lateral migration through the shallow overburden above bedrock at APEC 5, facilitate groundwater recharge and discharges to surface waters.

Section 6 Conclusions and Recommendations

Section 6 concluded the ongoing risks to surface waters from PFAS contaminants and shallow groundwater will need to be assessed following assessment of sampling in 2021/2022 to determine the requirement or other for future monitoring and surface water remediation to achieve the published threshold values for PFAS contaminants in surface waters.

This report assessed available information from historic groundwater monitoring results to inform the need or otherwise for surface water remediation measures. However, these historic wells were decommissioned during construction of the runway and taxiways and available information relating to groundwater quality post construction is limited. As a consequence, this report recommends:

- Installation of additional groundwater monitoring wells in 2021 to replace decommissioned wells to further assess impacts of residual contamination on downgradient ground and surface waters.
- Establishment of additional surface water monitoring locations.
- PFAS monitoring of Groundwaters
 - New borehole installations to have three rounds of fortnightly monitoring following installation to gain an initial dataset, thereafter subject to follow on reviews, frequency of monitoring to be reviewed during the 24 month post construction period.
 - For boreholes removed from airside locations intervals not to exceed 3 months.
- PFAS monitoring of surface waters



-
- At new surface water monitoring locations SWML8 and P4 three rounds of fortnightly monitoring to be carried out to gain an initial dataset.
 - Monitoring thereafter at new and existing monitoring locations listed in Table 6-2 to be conducted at quarterly intervals
 - It is recommended that the current RBFCC monitoring of quarterly monitoring of surface water sampling and analysis for Sum of PFAS, PFOS and PFOA be continued at all monitoring locations.
 - Review of surface water and groundwater monitoring results post 2021 to inform long term monitoring or other requirements in the event that PFAS contamination exceeds published threshold values.
 - Review of PFAS contaminants other than PFOA and PFOS post the 24 month construction period can better inform PFAS contaminant migration pathways.



2. EXISTING GEOLOGY AND HYDROGEOLOGY

2.1 Introduction

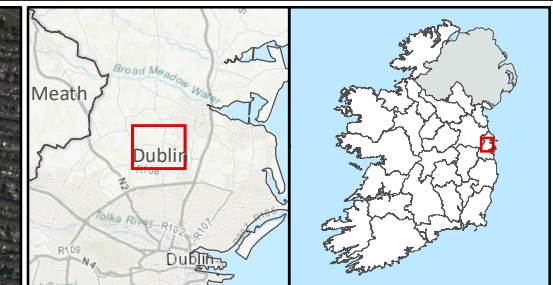
As part of the initial desk study to facilitate the completion of this risk assessment report Teagasc, Geological Survey of Ireland (GSI) and Ordnance Survey Ireland (OSI) online databases were reviewed to assess the following:

- Aquifer type.
- Groundwater bodies.
- Vulnerability (full national coverage of extreme vulnerable areas).
- Geology (Bedrock and Quaternary Deposits).
- Site land use history.

The location of the Former Fire Training Ground APEC 5 site is shown below in Figure 2-1 over.

Figure 2-1 also shows historic, existing and proposed monitoring locations with reference to geological fault plan locations.

Photographs of current surface water monitoring locations are presented in Appendix 1.



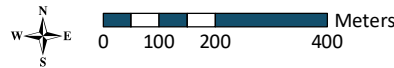
Legend

- Site Location
- >>> Rivers
- Manhole Locations
- + Existing Boreholes
- ⊗ Decommissioned Borehole
- ⊗ Proposed Boreholes

Stratigraphic and Structural Linework

- Anticlinal Axis
- Fault

TITLE: Site Location and Surface Water and Groundwater Monitoring Locations	
PROJECT: Dublin Airport North Runway Remediation Options	
FIGURE NO:	2.1
CLIENT:	Roadbridge
SCALE: 1:13500	REVISION: 0
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2.2 Geology

2.2.1 Drift/Quaternary Geology

Table 2-1 presents the soil types at APEC 5, as identified using the GSI Teagasc Soil maps. The GSI 1:50,000 scale subsoil map shows that the main quaternary sediments consist of *till derived from limestones* and *bedrock outcrop or subcrop*. Site investigations encountered low permeability black and brown boulder clays overlying shallow limestone bedrock (see Section 3.2 for further information).

Table 2-1: Soils Identification from GSI Teagasc Soils Map

Parent Material	Soil Group	IFS Soil Description	Category
Bedrock at Surface- Calcareous	Renzinas, Lithosols	Derived from mainly calcareous parent materials	Bedrock outcrop and sub-crop/ Shallow well drained mineral (Mainly basic)
Till derived chiefly from limestone	Surface water Gleys, Groundwater Gleys	Limestone till (Carboniferous)	Mineral poorly drained (Mainly basic)

2.2.2 Solid or Bedrock Geology

The GSI 1:100,000 scale bedrock geology map shows that the main bedrock formation underlying APEC 5 is the Malahide formation described as ‘*Argillaceous bioclastic limestone, shale*’. The lithology describes the lower part of the formation as “*calcareous shales, siltstones and sandstones, and occasional thin limestones at its base*”.

2.3 Hydrogeology

There are no karst landforms within the APEC 5 or Dublin Airport site boundaries according to the GSI Groundwater Karst Data. The nearest karst landform to APEC 5 is St. Doolaghs Well, approximately 7 km from the site. St. Doolaghs well is a spring and the lithology is limestone, clean ($\geq 90\%$ CaCO₃) and un-bedded.

The site is within the Swords Groundwater Body with a poorly productive bedrock flow regime. The bedrock aquifer underlying the site is a ‘Locally Important Aquifer (LI)’ which is “*moderately productive only in local zones*”. The River Basin District Code is ‘Eastern’.

There are no wells or springs within the APEC 5 site boundary. The GSI has mapped 2 No. warm springs approximately 1.7 km to 1.8 km southwest of the APEC 5 site at St. Margaret’s. At these localities typical water temperatures range from 12.5°C to 25°C, which is significantly above temperatures normally expected for Irish groundwater. It is thought that the groundwater issuing from these springs comes from a much deeper source than most groundwater in Ireland. The presence of warm springs has been associated with deep faults, which would allow deeper, warmer waters to migrate to the surface.



Details of the wells and springs are given in Table 2-2:

Table 2-2: Distance of Wells and Springs from the APEC 5 Site

BH/Spring ID	Yield class	Yield	Use	Depth (m)	Distance from site (km)	Date
2923NEW017 (BH)	Good	164	-	9.1	1.6	1899
2923NEW023 (Spring)	Low Spring	-	Unknown	-	1.8	1899
2923NEW024 (Spring)	Low Spring	-	Unknown	-	1.7	1899
2923NEW035 (BH)	Moderate	48.5	Unknown	60	2.6	1984
2923NEW014 (BH)	Good	130.9	Agri & Domestic Use	25.9	3.3	1899
2923NEW062 (BH)	Good	200	Industrial	122	2.6	1988
2923NEW015 (BH)	Good	130	Industrial	48.8	2.7	1899
2923NEW016 (BH)	Good	109	Domestic Use only	35.4	3.0	1899
2923NEW018 (BH)	Good	110	Industrial	46.9	3.9	1899
2923NEW019 (BH)	Good	385	Unknown	33.5	4.0	1899
2923NEW020 (BH)	Good	220	Unknown	27.4	3.8	1899
2923NEW021 (BH)	Poor	38.2	Agri & Domestic Use	36.6	3.4	1899
2923NEW031 (BH)	Moderate	83.8	Other	42.7	3.4	1899
2923NEW032 (BH)	Good	174.5	Unknown	103.6	4.0	1995
2923NEW034 (BH)	Good	300	Industrial	13.7	2.9	1991
2923NEW036 (BH)	Moderate	87	Industrial	91.4	2.5	1988
2923NEW037 (BH)	-	-	Industrial	122	2.5	1988
2923NEW038 (spring)	-	-	-	-	3.8	1899
2923NEW039 (spring)	-	-	-	-	4.0	1899
2923NEW042 (spring)	-	-	-	-	3.4	1899

There are no Groundwater Drinking Water Protection Areas within the site boundary, according to GSI. The closest groundwater protection areas to the site are Dunboyne Water Supply to the west, and Bog of the Ring to the north. APEC 5 is 12.8 km from Dunboyne Water Supply and 13.7 km from the Bog of the Ring groundwater protection area. The outer protection area of Dunboyne Water Supply is 0.83 km² and the inner protection area is 1.18 km². The outer protection area of Bog of the Ring is 17.64 km². There are two inner protection areas, measuring 1.30 km² and 0.41 km².



2.4 Groundwater Vulnerability

Groundwater vulnerability, as defined by the GSI, is the term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities.

The factors used in assessing groundwater vulnerability include subsoil type and thickness and recharge type as indicated in Table 2-3. The GSI assessment procedure for groundwater protection is outlined in the EPA-GSI publication *Groundwater Protection Schemes* (DELG/EPA/GSI, 1999).

The aquifer vulnerability rating for the APEC 5 site as designated by the GSI mapping is given in Table 2-3 and GSI mapping descriptions are as follows:

- The aquifer at APEC 5 is described as ‘rock at or near surface or karst’ with groundwater vulnerability code ‘X’ being present for the majority of the site. Along the eastern site boundary, the groundwater vulnerability is ‘extreme’, with the groundwater vulnerability code ‘E’.
- The soil drainage is classed as mainly ‘dry’. The recharge coefficient is 85% with a recharge of 200 mm/year for the majority of the site. The hydrogeological setting description is ‘*areas where rock is at ground surface*’, as such the subsoil permeability is not applicable at this site.
- Along the eastern site boundary where the groundwater vulnerability is ‘extreme’ the soil drainage is ‘wet’, the recharge coefficient is 22.5% with a recharge of 90 mm/year. The hydrogeological setting description in this area is Till overlain by poorly drained gley soil.

Table 2-3: GSI Guidelines - Aquifer Vulnerability Mapping

Vulnerability Rating	Hydrogeological Conditions		
	Subsoil Permeability (Type) and Thickness		
	High Permeability (Sand/gravel)	Moderate Permeability (e.g., Sandy soil)	Low Permeability (e.g., Clayey subsoil, clay, peat)
Extreme (E)	0 - 3.0 m	0 - 3.0 m	0 - 3.0 m
High (H)	>3.0 m	3.0 -10.0 m	3.0 - 5.0 m
Moderate (M)	N/A	>10.0 m	5.0 - 10.0 m
Low (L)	N/A	N/A	>10 m

Notes:

N/A = Not Applicable.

Precise permeability values not available.

Code X describing rock at or near the surface, as a Sub-category to Extreme Vulnerability Rating E, is not shown in Table 2-3. Sub-category X is however present within the APEC 5 location.

Grey shading reflects prevailing site conditions.



2.5 Hydrology

The site is located in an area of high drainage density, which indicates that a large proportion of the effective rainfall becomes surface runoff in this area.

The Flood Maps from OSI show there are no known flood plains at the site.

2.6 Ecology

The site is not within or directly adjacent to any Natural Heritage Area (NHA), proposed NHA (pNHA), Special Area of Conservation (SAC) or Special Protection Area (SPA) according to the National Parks and Wildlife Services Map Viewer (<http://webgis.npws.ie/npwsviewer/>).

However, the following SPAs, SACs and pNHAs are located within 10 km of the site:

SPAs:

- Broadmeadows/Swords Estuary (approx. 6 km north east of project site).

SACs:

- Malahide Estuary (approx. 6 km north east of project site).

pNHAs:

- Santry Demesne (approx. 3.5 km south of project site).
- Malahide Estuary (approx. 6 km north east of project site).
- Feltrim Hill (approx. 5 km east of project site).



3. REVIEW OF PREVIOUS STUDIES COMPLETED AT APEC 5 SITE

3.1 Overview

This section outlines previous investigations and environmental monitoring works undertaken by FT and RBFCC at the APEC 5 site to assess the potential for impacts to sensitive receptors from PFAS contaminants at the Dublin Airport site.

For further details on previous site investigations and environmental assessment works discussed in this section please refer to the following FT reports:

- *APEC 5 Environmental Site Investigation & Risk Assessment Report, August 2017.*
- *Quarterly Monitoring Report Former Fire Training Ground (APEC 5): Groundwater & Gas Monitoring, November 2017.*
- *Quarterly Monitoring Report Former Fire Training Ground (APEC 5): Groundwater & Gas Monitoring, February 2018.*
- *Quarterly Monitoring Report Former Fire Training Ground (APEC 5): Groundwater & Gas Monitoring, February 2018.*
- *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment, May 2018*
- *Environmental Monitoring Report for the Former Fire Training Ground (APEC 5): Groundwater & Surface Waters. Report Period: August – September 2018, November 2018.*
- *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment, November 2018; and*
- *RBFCC Site Investigation Reports, 2019.*

3.2 Extracts from Previous Studies

With reference to as-built green surface drainage drawings and models prepared and presented in *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment, May 2018* and *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment, November 2018*:

- Figure 3-1¹ presents a 2018 CSM of a section running north south (left to right) through the APEC 5 footprint. Figure 3-1 prepared by IE Consulting reflects the understanding of the CSM at that time.
- Figure 3-2² presents trial pit locations and PFOS and PFOA results from trial pit samples collected within the top 0.5 m of clay within the APEC 5 site (2018). Figure 3-2 was prepared by IE Consulting and included in the May 2018 DQRA. Results show the presence of elevated Total PFOS and Total PFOA in TP427, TP428, TP429, TP434, TP436, and TP437; elevated Total PFOS only in TP439 and TP441; and elevated Total PFOA only in TP435.
- Figure 3-3² presents PFOS and PFOA results from bedrock borehole samples (2018). Figure 3-3 was prepared by IE Consulting and included in the May 2018 DQRA.

¹ Appendix 1 from *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* dated Nov 2018

² Appendix 1 from *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* dated May 2018



- Figure 3-4² presents PFOS and PFOA surface water monitoring results from adjacent drains (2018). Figure 3-4 was prepared by IE Consulting and included in the May 2018 DQRA.
- Figure 3-5³ shows bedrock geology, including location of faults in vicinity of APEC 5 footprint.
- Figure 3-6 shows groundwater flow direction (January 2018). Figure 3-6 was prepared by IE Consulting and included in the November 2018 DQRA. Based on the findings of the site investigations and from the CSM (Figure 3-1) it was considered that groundwater beneath the site was most likely migrating and discharging laterally via fracture controlled flow within the upper 10 metres of limestone bedrock and discharging to the local surface water drainage network.
- Figure 3-7¹ shows the theoretical compliance point (CP1) located 840 m downgradient of APEC 5. The compliance point CP1 was generated to model downgradient shallow bedrock groundwater concentrations of contaminants of concern.
- Table 3-1 shows a summary of trial pit descriptions excavated within the vicinity of the APEC 5 footprint.
- Table 3-2⁴, Table 3-3⁵, Table 3-4⁶ and Table 3-5⁷ show groundwater monitoring results from January, August, September and October 2018, respectively. PFOS/PFOA screening shows upgradient water quality exceeded EPA groundwater quality criteria and USEPA drinking water criteria. Yellow cells indicate where results exceed stated guideline values.
- Table 3-6⁸ shows the groundwater elevations from 2018.
- Table 3-7⁹ shows shallow soil monitoring results January 2018: PFOS/PFOA screening. The reported maximum residual PFOS/PFOA concentrations presented in Table 3-7 were below health-based soil quality criteria for PFOS and PFOA published by the Danish Environmental Protection Agency.
- Table 3-8¹⁰ and Table 3-9¹¹ respectively show surface water monitoring results from January and August to October 2018 PFOS/PFOA screening. The detected concentrations do not exceed the 36,000 ng/l Maximum Allowable Concentration (MAC) for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015. However, the detected concentrations of Total PFOS at the surface water monitoring points, with the exception of SW2-2 in January 2018, exceed the 0.65 ng/l Annual Average EQS for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015. (Yellow highlighted cells indicate where results exceed stated guideline values.)

³ Geological Survey of Ireland (GSI) Public Data Viewer (<https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx>)

⁴Table 4-3 from *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* dated Nov 2018

⁵ Table 4-4 from *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* dated Nov 2018

⁶ Table 4-5 from *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* dated Nov 2018

⁷ Table 4-6 from *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* dated Nov 2018

⁸Table 4-2 from *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* dated Nov 2018

⁹ Table 4-1 from *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* dated Nov 2018

¹⁰ Table 4-7 from *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* dated Nov 2018

¹¹ Table 4-8 from *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* dated Nov 2018

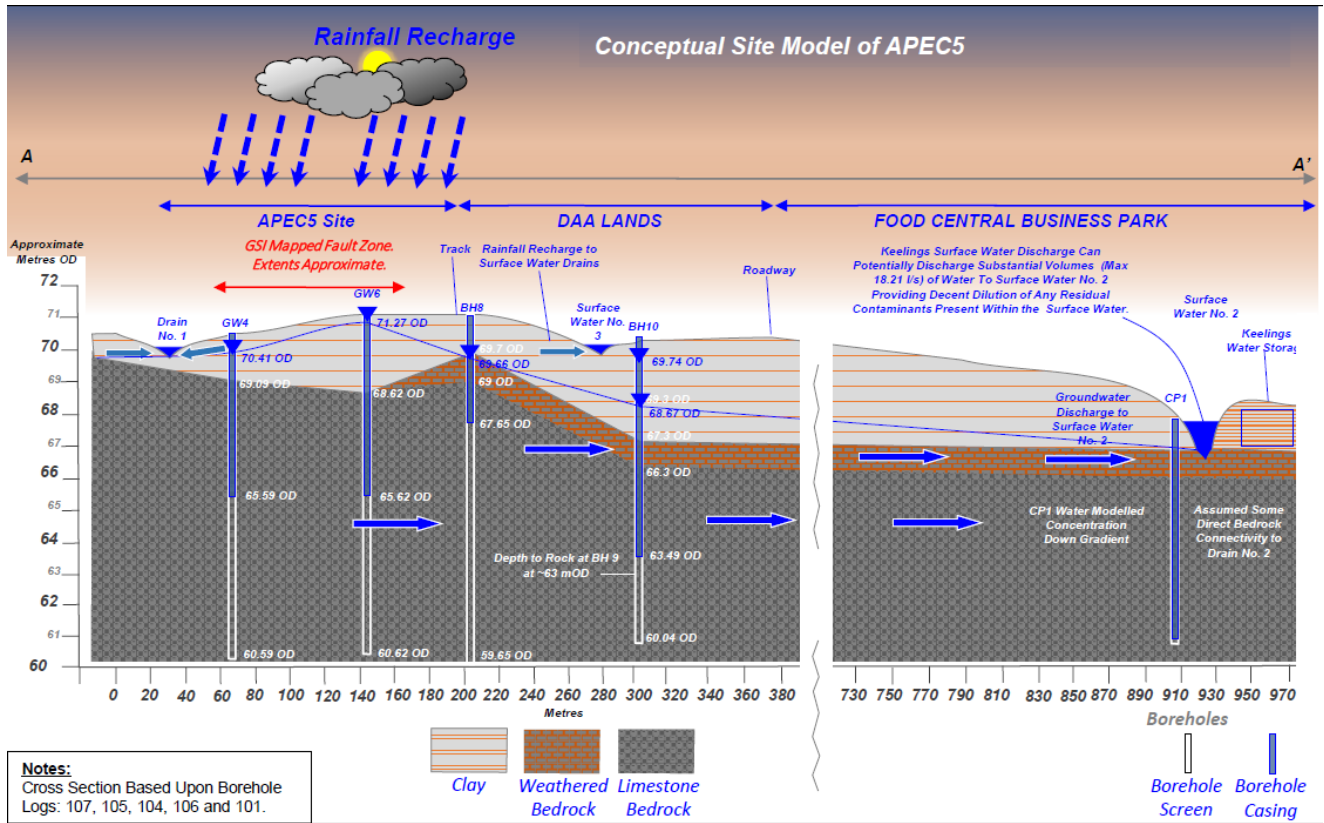


Figure 3-1: Conceptual Site Model¹ of APEC 5 Area, prepared by IE Consulting and Reproduced from the November 2018 DQRA (Section Running North-South see Figure 3-7)

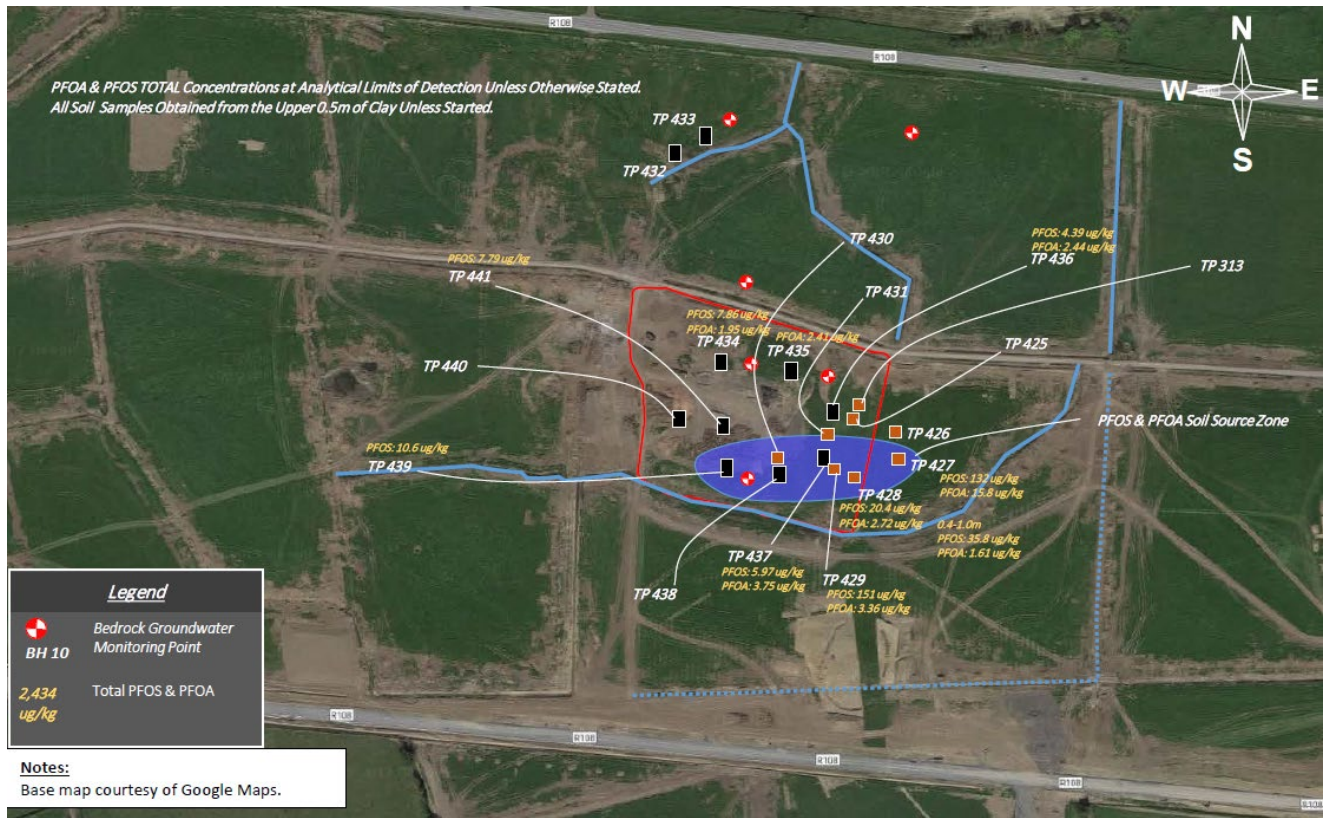


Figure 3-2: PFOS and PFOA Sample Results from Upper 0.5 m of Clay² prepared by IE Consulting and Reproduced from the May 2018 DQRA



Figure 3-3: PFOS and PFOA Sample Results from Shallow Borehole Bedrock Samples² prepared by IE Consulting and Reproduced from the May 2018 DQRA



Figure 3-4: PFOS and PFOA Sample Results from Surface Drains adjacent to APEC 5² prepared by IE Consulting and Reproduced from the May 2018 DQRA

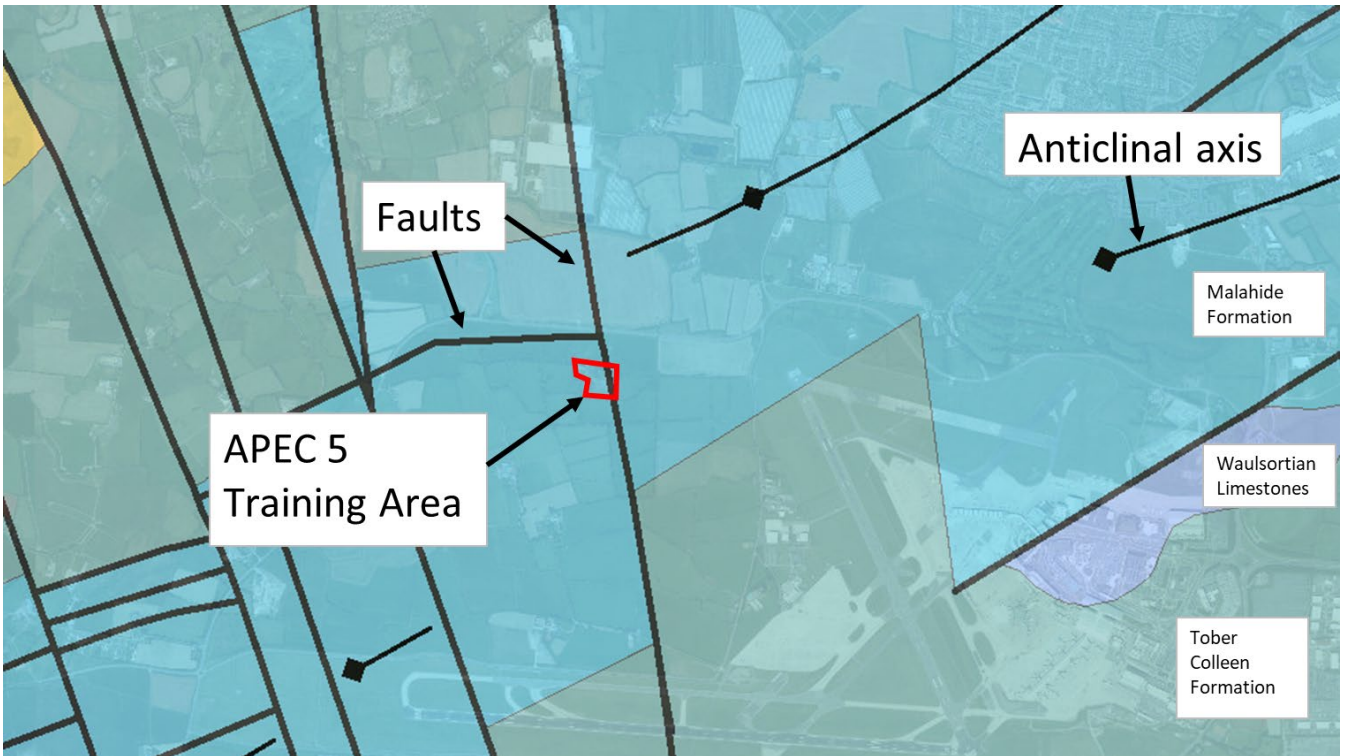


Figure 3-5: Bedrock Geology and Location of Faults in Vicinity of APEC 5 Footprint⁴

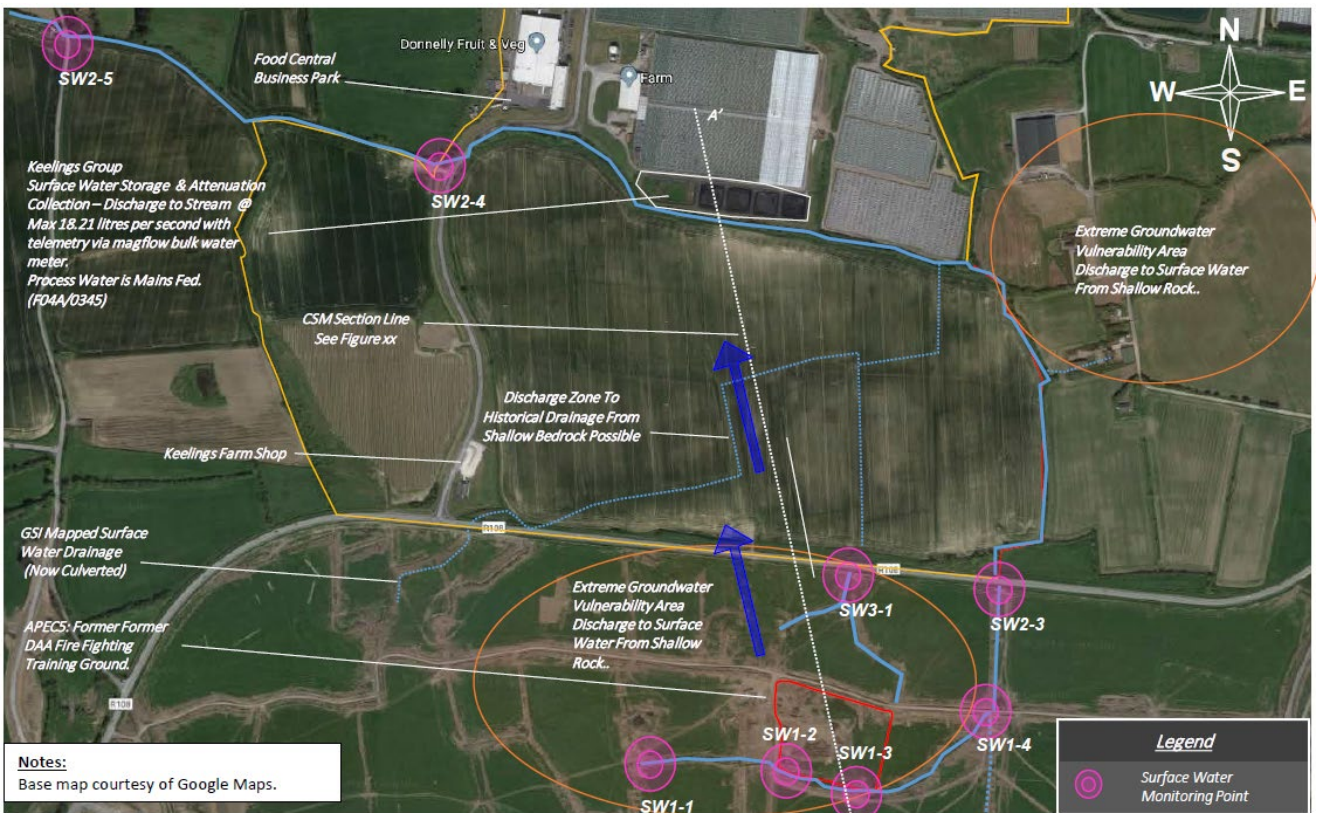


Figure 3-6: Groundwater Flow Direction¹ prepared by IE Consulting and Reproduced from the November 2018 DQRA

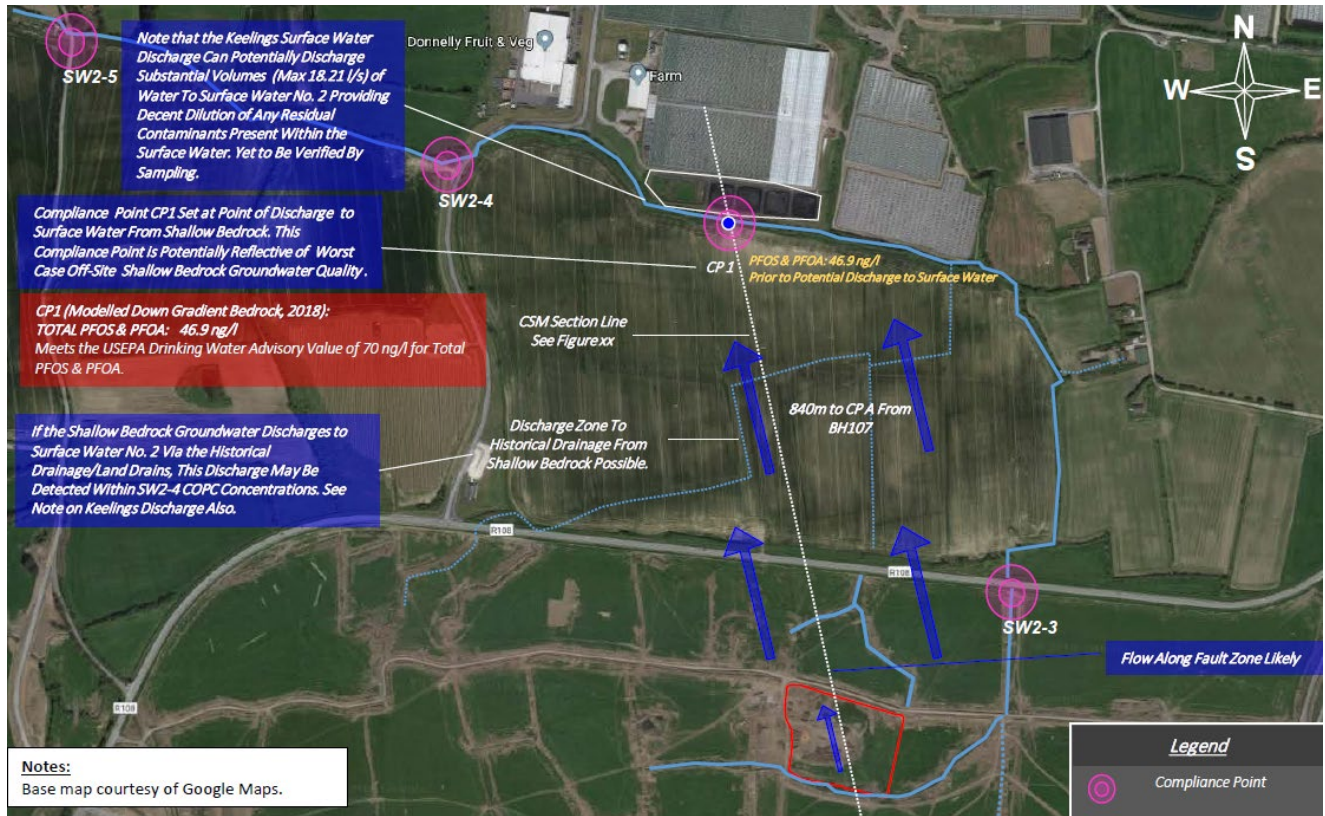


Figure 3-7: Compliance Point CP 1 COPC Map¹ prepared by IE Consulting and Reproduced from the November 2018 DQRA

Table 3-1: Summary Trial Pit Descriptions Shown in Figure 3-2

Date	Trial Pit ID	Depth to Original Bedrock (m)/Total Depth of Trial Pit (m)	Soil Description	PFOS/PFOA Concentrations (upper 0.5m unless stated)
14.07.2016	TP313	1.4/1.9	Topsoil (0.1 m) overlying made ground (0.2 m) overlying stiff brown sandy gravelly CLAY with occasional cobbles and boulders (1.1 m) overlying weathered limestone.	PFOS: 1.3 ug/kg 0.9m PFOS: 1.7 ug/kg
24.07.2017	TP425	Not encountered/1.1	Made ground (0.3 m) over firm to stiff sandy gravelly CLAY with cobbles (limestone) (0.8 m).	Not analysed for PFOS/PFOA
24.07.2017	TP426	Not encountered/1.2	Topsoil (0.3 m) over firm brown sandy slightly gravelly CLAY with frequent cobbles (0.9 m).	Not analysed for PFOS/PFOA



Date	Trial Pit ID	Depth to Original Bedrock (m)/Total Depth of Trial Pit (m)	Soil Description	PFOS/PFOA Concentrations (upper 0.5m unless stated)
24.07.2017	TP427	Not encountered/1.2	Made ground (0.4 m) over firm brown sandy slightly gravelly CLAY with frequent cobbles (limestone) (0.8 m).	PFOS: 132 ug/kg PFOA: 15.8 ug/kg 0.4-1.0m PFOS: 35.8 ug/kg PFOA: 1.61 ug/kg
24.07.2017	TP428	0.8/1.0	Made ground (0.4 m) over firm brown sandy slightly gravelly CLAY with frequent cobbles (limestone) (0.4 m) over weathered limestone.	PFOS: 20.4 ug/kg PFOA: 2.72 ug/kg
24.07.2017	TP429	0.5/0.5	Made ground (0.2 m) over firm brown sandy clay (0.1 m) over weathered limestone.	PFOS: 151 ug/kg PFOA: 3.36 ug/kg
24.07.2017	TP430	0.5/1.0	Topsoil (0.2 m) over brown soft to firm sandy CLAY with frequent angular cobbles (0.3 m) over limestone.	Not analysed for PFOS/PFOA
24.07.2017	TP431	0.45/1.0	Firm to stiff brown sandy CLAY with frequent angular cobbles (0.45 m) over weathered limestone.	Not analysed for PFOS/PFOA
17.01.2018	TP432	1.75/1.75	Topsoil (0.2 m) overlying soft light grey brown CLAY glacial till (0.5 m) overlying soft to firm brown CLAY glacial till (1.05 m) overlying weathered limestone.	0.7-0.8m PFOS: <2 ug/kg PFOA: <1 ug/kg
17.01.2018	TP433	1.8/1.8	Topsoil (0.2 m) overlying soft grey brown CLAY glacial till (0.5 m) overlying soft to firm brown CLAY glacial till (1.05 m) overlying weathered limestone.	0.9-1.0m PFOS: <2 ug/kg PFOA: <1 ug/kg
17.01.2018	TP434	1.6/1.6	Made ground (0.3 m), over firm dark grey CLAY glacial till (0.5 m) over firm light brown CLAY glacial till (0.8 m).	PFOS: 7.86 ug/kg PFOA: 1.95 ug/kg
17.01.2018	TP435	1.6/1.6	Made ground (0.3 m) overlying firm dark grey brown CLAY glacial till (0.5 m) overlying firm light brown CLAY glacial till (0.8 m) overlying weathered limestone.	PFOS: <2 ug/kg PFOA: 2.41 ug/kg
17.01.2018	TP436	1.0/1.0	Topsoil (0.2 m) overlying soft to firm brown CLAY glacial till (0.8 m) overlying weathered limestone.	PFOS: 4.39 ug/kg PFOA: 2.44 ug/kg



Date	Trial Pit ID	Depth to Original Bedrock (m)/Total Depth of Trial Pit (m)	Soil Description	PFOS/PFOA Concentrations (upper 0.5m unless stated)
17.01.2018	TP437	1.0/1.0	Topsoil (0.2 m) overlying soft to firm brown CLAY glacial till (0.8 m) overlying weathered limestone.	PFOS: 5.97 ug/kg PFOA: 3.75 ug/kg
17.01.2018	TP438	1.1/1.1	Made ground (0.2 m) overlying soft to firm light grey brown CLAY glacial till (0.9 m) overlying weathered limestone.	PFOS: <2 ug/kg PFOA: <1 ug/kg
17.01.2018	TP439	1.2/1.2	Topsoil (0.2 m) overlying soft to firm grey brown CLAY glacial till (1.0 m) overlying weathered limestone.	PFOS: 10.6 ug/kg PFOA: <1 ug/kg
17.01.2018	TP440	1.2/1.2	Made ground (0.2 m) overlying firm to stiff light brown CLAY glacial till (0.30 m) overlying firm dark brown CLAY glacial till (0.7 m) overlying weathered limestone.	PFOS: <2 ug/kg PFOA: <1 ug/kg
17.01.2018	TP441	1.5/1.5	Made ground (0.2 m) overlying stiff to very stiff light grey CLAY glacial till (0.1 m) overlying stiff to very stiff light brown CLAY glacial till (0.3 m) overlying firm to stiff dark brown sandy CLAY glacial till (0.9 m) overlying weathered limestone.	PFOS: 7.79 ug/kg PFOA: <1 ug/kg

Table 3-2: Groundwater Monitoring Results January 2018: PFOS/PFOA Screening (Reproduced from Table 4-3 of November 2018 DQRA)

Parameter	Units	No of tests	Guideline Values	Exceedances	GW4	GW5	GW6	BH08	BH09	BH10	BH105	BH107
Total PFOS	ng/l	6	1000 ¹	1	1,630	884	443	201	<LOD	<LOD	<LOD	<LOD
Total PFOS & PFOA	ng/l	6	70 ²	4	2,434	2,354	745	244.1	<LOD	<LOD	<LOD	<LOD

Note 1: EPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater

Note 2: United States Environmental Protection Agency (USEPA) Drinking Water Advisories for PFOA and PFOS

* <LOD: Below Laboratory Limit of Detection



Table 3-3: Groundwater Monitoring Results August 2018: PFOS/PFOA Screening (Reproduced from Table 4-4 of November 2018 DQRA)

Parameter	Units	No of tests	Guideline Values	Exceedances	GW4	GW5	GW6	BH08	BH09	BH10	BH105	BH107
Total PFOS	ng/l	6	1000 ¹	0	465	156	96.5	4.43	<LOD	<LOD	NS ³	NS ³
Total PFOS & PFOA	ng/l	6	70 ²	3	701	456	124.5	5.85	<LOD	<LOD	NS ³	NS ³

Note 1: EPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater
 Note 2: United States Environmental Protection Agency (USEPA) Drinking Water Advisories for PFOA and PFOS
 Note 3: Not Sampled
 * <LOD: Below Laboratory Limit of Detection

Table 3-4: Groundwater Monitoring Results September 2018: PFOS/PFOA Screening (Reproduced from Table 4-5 of November 2018 DQRA)

Parameter	Units	No of tests	Guideline Values	Exceedances	GW4	GW5	GW6	BH08	BH09	BH10	BH105	BH107
Total PFOS	ng/l	6	1000 ¹	1	1130	144	60.7	<LOD	<LOD	<LOD	NS ³	NS ³
Total PFOS & PFOA	ng/l	6	70 ²	3	1693	434	79.2	<LOD	<LOD	<LOD	NS ³	NS ³

Note 1: EPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater
 Note 2: United States Environmental Protection Agency (USEPA) Drinking Water Advisories for PFOA and PFOS
 Note 3: Not Sampled
 * <LOD: Below Laboratory Limit of Detection

Table 3-5: Groundwater Monitoring Results October 2018: PFOS/PFOA Screening (Reproduced from Table 4-6 of November 2018 DQRA)

Parameter	Units	No of tests	Guideline Values	Exceedances	GW4	GW5	GW6	BH08	BH09	BH10	BH105	BH107
Total PFOS	ng/l	6	1000 ¹	0	896	81.4	536	<LOD	<LOD	<LOD	NS ³	NS ³
Total PFOS & PFOA	ng/l	6	70 ²	3	1331	256.4	1040	<LOD	<LOD	<LOD	NS ³	NS ³

Note 1: EPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater
 Note 2: United States Environmental Protection Agency (USEPA) Drinking Water Advisories for PFOA and PFOS
 Note 3: Not Sampled
 * <LOD: Below Laboratory Limit of Detection

Table 3-6: Groundwater Level Results 2018 (Reproduced from Table 4-2 of November 2018 DQRA)

Monitoring Location	Total Well Depth (m)	Well dip, D.T.W. (m BGL)*	Well dip, D.T.W. (m BGL)*	Well dip, D.T.W. (m BGL)*	Well dip, D.T.W. (m BGL)*
		January	August	September	October
GW4	10.2	0.57	2.68	2.87	2.27
GW5	10.2	0.26	3.17	3.17	3.12
GW6	10.31	0.25	2.95	2.98	2.7
BH08	10.0	0.73	2.7	2.74	2.71
BH09	10.0	3.51	5.03	5.01	4.97
BH10	9.70	0.32	2.1	2.16	2.09

* Well dip, (D.T.W) depth to water, meters below ground level (m BGL).



Table 3-7: Soil Sampling Results January 2018: PFOS/PFOA Screening (Reproduced from November Table 4-1 of 2018 DQRA)

Parameter	Units	Max	No of tests	SL1 Danish EPA Criteria	No > SL1
PFOA	ug/kg	7.98	18	1300	0
Total PFOS	ug/kg	128	18	390	0
PFOSA	ug/kg	<1	18	390	0

Table 3-8: Surface Water Monitoring Results January 2018: PFOS/PFOA Screening (Reproduced from November Table 4-7 of 2018 DQRA)

Parameter	Units	No of tests	MAC ¹	Average Annual Concentration ¹	SW1-1	SW1-2	SW1-3	SW1-4	SW2-1	SW2-2	SW2-3	SW2-4	SW2-5	SW3-1
Total PFOS	ng/l	8	36,000	0.65	4.49	94.6	334	114	248	<LOD	284	NS ²	NS ²	151

Note 1: Environmental Quality Standard (EQS), as classified by S.I. No. 386 of 2015 European Union Environmental Objectives (Surface Water) (Amendment) Regulations, 2015

Table 3-9: Surface Water Monitoring Results August to October 2018: PFOS/PFOA Screening (Reproduced from November Table 4-8 of 2018 DQRA)

Parameter	Units	Date	MAC ¹	Average Annual Concentration ¹	SW1-1	SW1-2	SW1-3	SW1-4	SW2-1	SW2-2	SW2-3	SW2-4	SW2-5	SW3-1
Total PFOS	ng/l	Aug-18	36,000	0.65	NS ²	NS ²	NS ²	NS ²	NS ²	NS ²	NS ²	4.43	8.84	NS ²
Total PFOS	ng/l	Sep-18	36,000	0.65	NS ²	NS ²	NS ²	NS ²	NS ²	NS ²	NS ²	4.03	7.3	197
Total PFOS	ng/l	Oct-18	36,000	0.65	NS ²	NS ²	112	NS ²	NS ²	NS ²	NS ²	1.4	1.87	98.4

Note 1: Environmental Quality Standard (EQS), as classified by S.I. No. 386 of 2015 European Union Environmental Objectives (Surface Water) (Amendment) Regulations, 2015

Note 2: Not Sampled due to lack of surface water at respective sample location

3.3 Summary

Monitoring findings from previous investigations confirmed that residual concentrations of PFOS and PFOA remain within shallow bedrock groundwater beneath the APEC 5 site. A number of the groundwater monitoring locations exceeded USEPA Drinking Water Advisories for PFOS and PFOA threshold values.

The results of the surface water sampling undertaken as part of the November 2018 DQRA *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* indicated that PFOS/PFOA contaminated surface waters migrated off-site via drainage channels and impacted off-site surface water receptors (River Ward).

The detected concentrations of Total PFOS at off-site surface water monitoring locations sampled during August to October 2018 exceeded the 0.65 ng/l Inland Surface Waters for Total PFOS EQS (set by S.I. No. 386 of 2015). Although it was noted that concentrations were significantly reduced by dilution once they had reached off site water courses.



A remedial targets methodology (Environment Agency) *Remedial Targets Methodology – Hydrological Risk Assessment for Land Contamination Works R&D* was used to estimate concentrations at a theoretical compliance point (CP1) located 840 m downgradient of the source, see Figure 3-7 for location of CP1. The results of remedial targets modelling predicted that groundwater PFOS & PFOA contamination would be diluted before reaching compliance point CP1 situated downgradient of the source zone and within the Dublin Airport site boundary. The modelling indicated that contaminant levels would be below the relevant groundwater standards at CP1.

In summary, the November 2018 DQRA *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment*, indicated that PFOS & PFOA contaminated groundwater was present within the source zone beneath APEC 5. Residual PFOS & PFOA contamination was also identified within shallow soils and considered to be an on-going source of contamination to groundwater through vertical migration of contaminants through the overburden and underlying unsaturated bedrock. The source of the PFOS & PFOA contaminated soil and groundwater is believed to be from firefighting foam.

Conclusions of previous studies undertaken by FT considered that groundwater flow to the north of APEC 5 was the primary transport mechanism for moving contaminated groundwater laterally towards the identified receptors. These receptors included downgradient groundwater abstraction points, surface waters and human health.



4. OVERVIEW OF CONSTRUCTION WORKS

4.1 Overview of Construction Works on or Adjacent to the APEC 5 Footprint Completed Since the November 2018 DQRA

Construction works for the runway within/adjacent to the APEC 5 footprint required the following:

- Surface water management advance works.
- Excavation of material in APEC 5 site.
- Stabilisation works offset from runway.
- Reprofiling of green areas.
- Construction of P4 filter drain.
- Construction of pavement drainage system.

Figure 4-1 presents an overview of engineered green surface drainage catchment areas, outfall and monitoring locations. This figure also shows source location of APEC 5 material and re-use backfill locations around the storm drainage attenuation tanks PHWT and R2. These works are detailed under a separate cover¹². There are two geological faults in the Malahide formation, see also Figure 3-5, in close proximity to the APEC 5 source material.

Refer to Appendix 1 for photographs of surface water monitoring locations.

Refer to Appendix 2 for construction issue green surface area drainage drawings.

¹² Material Management Design Report for the Management for PFOS/PFOA impacted soils dated November 2020

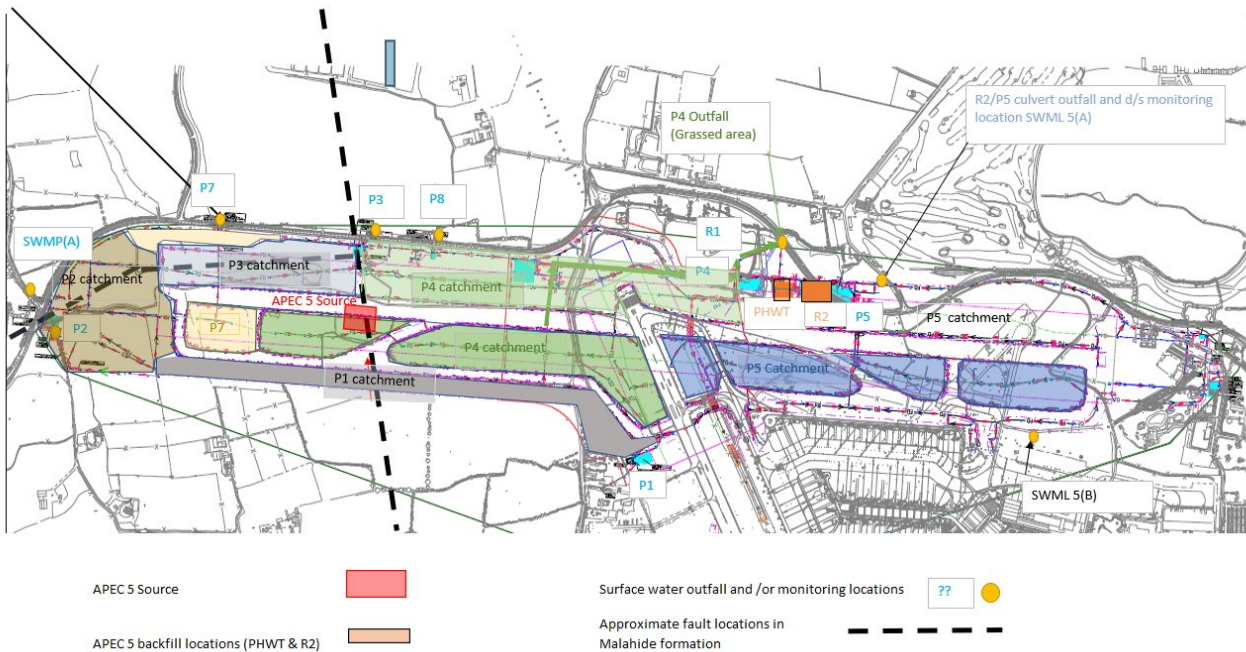


Figure 4-1: Overview of Surface Water Engineered Green Catchment Areas, Monitoring and Structure Locations.

4.1.1 Surface Water Management Advance Works

Refer to Appendix 3 drawings:

- Historic Drain Locations.
- Sub-Formation Survey and Pre-Earthworks Drainage (plan).
- Sub-Formation Survey and Pre-Earthworks Drainage Cross-Section at CH600.

Surface water management advance works were completed in February 2019. This included decommissioning existing surface water drains, inverts of which were below the sub-formation level.

Original surface drains immediately adjacent to the APEC 5 location were infilled with recovered cohesive brown boulder clays.

Anecdotal evidence from the Contractor also advised that during earthworks, groundwater was locally perched above bedrock within the overburden soil material.

Drainage outfalls in other parts of the site removed from APEC 5 were maintained during construction until such time as the new surface drainage systems were in place. In discrete areas outfall drains were lined with a geotextile and backfilled with clean stone to help manage suspended solids. Historic drainage outfalls from these outfall drains were subsequently sealed with brown boulder clays to prevent surface or subsurface discharges to downstream surface waters



4.1.2 Excavation of Material Within APEC 5 site

Refer to:

- Appendix 4 Trial Pits and Borehole Locations and Pre-construction Levels.
- Appendix 4 Trial Pits and Borehole Locations Cut Levels.
- Appendix 4 Trial Pits and Borehole Locations Finish Levels.
- Appendix 5 APEC 5 Stockpile Location.
- Appendix 6 A Proposed Method to Displace APEC 5 Material.
- Appendix 7 Images of APEC 5 Works.
- Appendix 8 APEC 5 Capping Grade Strip.
- Appendix 8 APEC 5 Cross Sections CH560.
- Appendix 8 APEC 5 Cross Sections CH600.
- Appendix 8 APEC 5 Cross Sections CH650.

The excavation and removal¹³ of approximately 26,244 m³ of overburden to the runway and taxiway formations was required as part of the works.

Original ground levels varied between circa. 69.8 m and 72.0 m, see Pre-Construction Level Drawing in Appendix 4.

The northern part of the APEC 5 site (approximately half of the APEC 5 footprint) was located within the footprint of the runway. During the initial phase of excavation, the impacted material at the APEC 5 site was temporarily stockpiled within the APEC 5 site to facilitate runway pavement construction. This stockpile was required until such time as a final destination had been agreed for re-use of the impacted materials. Appendix 5 APEC 5 Stockpile Location shows the stockpile footprint.

A proposed method to stockpile displaced APEC 5 material from the runway was drafted by RBFCC and approved by the Employers Representative. The methodology is presented in Appendix 6. A summary of the works completed by RBFCC is provided below:

- Excavation and stockpiling activities commenced on 17th July 2019 and were completed on 24th July 2019. Works were completed in dry weather conditions only.
- The excavated material within the runway footprint of the APEC 5 site was stockpiled within the APEC 5 site boundary but outside the runway footprint. Excavated bedrock material was relocated for temporary storage at the East Compound on 25th and 26th July 2019.
- Material was displaced from an area of 120 m (l) by <50 m (w) in the north section of the site to the temporary accommodation area of 120 m (l) by <45 m (w) in the south section of the site.
- The works area in the north section of the APEC 5 site was contained by a 1 m high earthen berm which contained surface runoff within the stockpiled area.

¹³ Material Management Design Report for the Management for PFOS/PFOA impacted soils dated November 2020



- A separation membrane was placed on the southern section of the APEC 5 site between the existing ground and the stockpiled material to prevent the migration of PFOS/PFOA impacted material into the underlying soils.
- The stockpiled material was progressively and promptly “sealed” by profiling the surface with the back side of an excavator bucket to prevent airborne particles transport and dissipation PFOS/PFOA compounds into the proximal catchment drainage.

Images from the APEC 5 displacement works are included in Appendix 7.

The excavated formation varied between circa 69.0 m and 70.0 m, see Cut Level Drawing in Appendix 4.

Figure 4-2 shows:

- An aerial view of the approximate APEC 5 footprint.
- The location of the P4 green area filter drain (adjacent and external to the APEC 5 area).
- The approximate extent of stabilisation works.

Runway construction proceeded 2019 through to 2020. The stockpiled material was subsequently removed to provide backfill around stormwater tanks PHWT and R2 (locations shown Figure 4-1), between 21st July 2020 and 31st July 2020. Following removal of stockpiles, the original APEC5 surface in the southern section of the APEC 5 site was excavated to the required cut level on 25th August 2020 and excavated material was relocated and used to backfill tanks PWHT and R2.

Surface reinstatement capping outside the runway comprised topsoil placed above 6F2 material. Refer to Appendix 8 Capping Graded Strip Drawing and associated Cross-Section Drawings at CH560, CH600 and CH650.

The area outside of the runway and within the APEC 5 site was capped using 6F2 material between 24th August 2020 and 26th August 2020, with topsoil being placed between the 1st December 2020 and 2nd December 2020.

The final topsoil thickness used throughout the scheme (including over the rock in the P4 Green Area/final cap cover above bedrock) was 150 mm.

The final profile levels are presented in Appendix 4 Trial Pits and Borehole Locations Finish Levels Drawing.

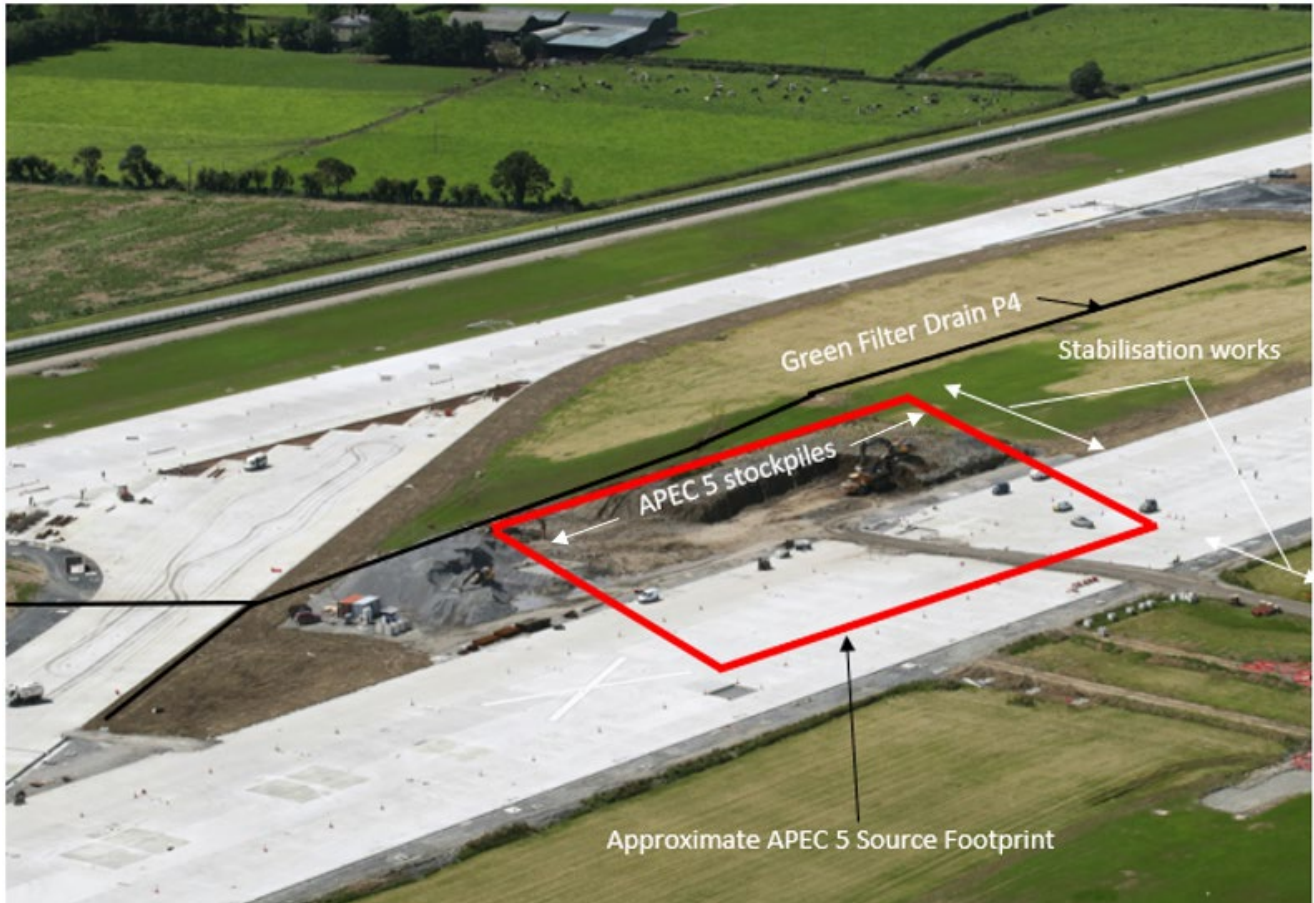


Figure 4-2: Aerial View of Stockpiled APEC 5 Material Being Excavated for Re-Use as Backfill Around Stormwater Tanks PWHT and R2 (20th July 2020)

4.1.3 Stabilisation Works Off Set from Runway

Refer to:

- Appendix 8 APEC 5 Capping Grade Strip.
- Appendix 8 APEC 5 Cross Sections CH560.
- Appendix 8 APEC 5 Cross Sections CH600.
- Appendix 8 APEC 5 Cross Sections CH650.
- Appendix 9 APEC 5 Sub-Formation.
- Appendix 9 APEC 5 Filling Materials Placed.

Stabilisation of ground either side of the runway to an offset of 105 m from the runway centre line was required on bedrock and soil:

- On bedrock, the rock was broken out to the correct level and regulated with granular material. This created the correct profile and achieved the design California Bearing Rating (CBR), see Appendix 9 APEC 5 Sub-Formation drawing. Cross sections are also shown in Appendix 8.



- On soil, a 300 mm deep cement stabilisation operation was carried out to achieve design CBR, see Appendix 9 APEC 5 Filling Materials Placed

Within the APEC 5 site, the stabilisation area was primarily founded directly on weathered bedrock, see Appendix 9 drawing APEC 5 Sub-Formation Type. The stabilisation area north of the runway and APEC 5 site and south of the APEC 5 site was founded on soil.

Filling materials used in the southern stabilisation area within and adjacent to the APEC 5 included clay, cement stabilised soil and 6F2 (granular fill), see Appendix 9 drawing Filling Materials Placed.

Fill materials used in the stabilisation area north of the runway and the APEC 5 site used cement stabilised soil and clay.

Stabilisation fill material placed alongside the runway used Sub-base/Clause 808 (crushed stone).

4.1.4 Reprofiling of Green Areas

Refer to:

- Appendix 4 Trial Pits and Borehole Locations Finish Levels.
- Appendix 8 APEC 5 Capping Grade Strip.
- Appendix 8 APEC 5 Cross Sections CH560.
- Appendix 8 APEC 5 Cross Sections CH600.
- Appendix 8 APEC 5 Cross Sections CH650.

Green areas were reprofiled between pavements.

Following removal of soil, brown boulder clay subsoil and topsoil were reused from other excavations on site and placed atop of the fill materials. Green area infill depths of material (including filling material and topsoil) within the APEC 5 site are illustrated in Appendix 8, see Capping Graded Strip Drawing and associated Cross-Section Drawings at CH560, CH600 and CH650. The final topsoil thickness used throughout the scheme (including over the rock in the P4 Green Area/ final cap cover above bedrock) was 150 mm.

The finished levels of the green area in P4 within and in the vicinity of the APEC 5 site range from circa 68.6 – 70.4 mOD, see Finished Level Drawing in Appendix 4.

4.1.5 P4 Filter Drain

Refer to Appendix 10 APEC 5 Location P4 Drain.

A green storm filter drainage system (P4) was constructed to remove storm water runoff (and subsurface flows) from green areas. The P4 drain is located adjacent to the south boundary of the APEC 5 site, see Location P4 Drain Drawing in Appendix 10.



The P4 filter drain comprises a network of c. 6 km of drainage (both filter and carrier drains) ranging from 225 – 900 mm in diameter and 85 no. manholes (also referred to as ‘Chambers’). The P4 filter drain flows to the P4 attenuation tank which discharges into the Forest Little surface watercourse (part of River Sluice catchment).

The invert level of the drain ranges from c. 59.6 - 68.8 mOD. The cover of material above the drainage ranges from c. 0.90 m – 4.10 m.

In the location of the APEC 5 area, the drain diameter is 0.525 – 0.675 m and its invert varies between 0.9 m and 2.0 m below ground elevation.

The P4 filter drain comprises a perforated plastic 600 mm pipe surrounded by granular fill and the invert is typically founded on soil. However, in vicinity of the southern boundary of the APEC 5 site, the invert is founded on bedrock.

4.1.6 Pavement Drainage System

Paved area layout drawings details are listed below. These drawings are not presented in this report.

- EDAD098015-CP2-RF-DZZ-OTHW-SH-C-0502 Paved Area Drainage West Drainage Schedule.
- EDAD098015-CP2-RF-DZZ-OTHW-SH-C-0521 Paved Area Drainage West.
- EDAD098015-CP2-RF-DZZ-OTHW-SH-C-0502 Paved Area Drainage East Drainage Schedule.
- EDAD098015-CP2-RF-DZZ-OTHW-SH-C-0522 Paved Area Drainage East Layout.
- EDAD098015-CP2-RF-DZZ-OTHW-SH-C-0523 Paved Area Drainage East Layout.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0508 PWHT Drainage Schedule.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0530 Proposed Foul Drain Layout.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0531 Proposed Foul Drain Cross Sections.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0532 PWHT GA Sheet 1.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0533 PWHT GA Sheet 2.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0534 Drainage Details Flow Diversion Chamber No 1.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0535 Drainage Details Flow Diversion Chamber No 2.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0536 Drainage Details Pollution Monitoring Chamber West.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0537 Drainage Details Pollution Monitoring Chamber East.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0538 Drainage Details Pollution Monitoring Kiosk.
- EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0539 Drainage Details Pump Station.

The pavement drainage system intercepts surface runoff from the concrete runway and taxiways and isolates the underlying materials from deep percolation inputs to ground water following rainfall, see overview in Figure 4-1.

Water runoff from runway and taxiways is collected in a slot drain, see Figure 4-3 at the edges of the runway and taxiway paved surfaces. The slot drains discharge via outlet chambers into adjacent carrier drains. The carrier drains have chambers at 100 m centres.



The carrier drains from Runway 1 (west) discharge into the R1 storm water runoff attenuation tank, see Figure 4-4 and thence into the Ward River catchment adjacent to the P4 outfall.

The carrier drains from Runway 2 (east) discharges into the R2 storm water runoff attenuation tank, see Figure 4-5 and thence into the Ward River catchment adjacent to the P5 outfall.

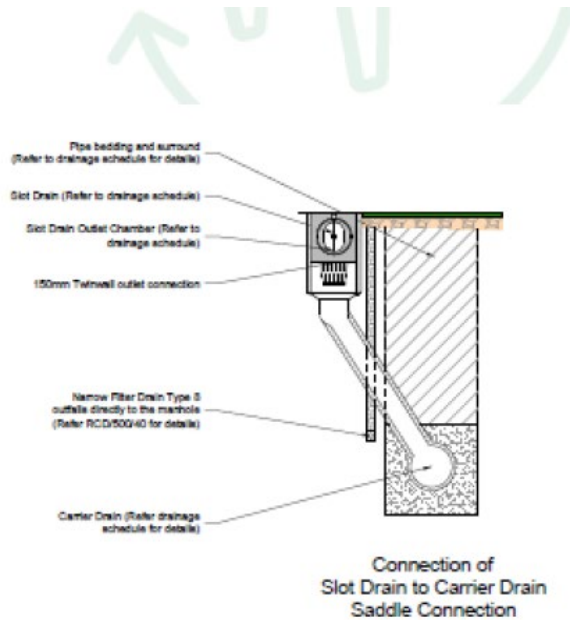


Figure 4-3: Paved Area Slot Drain at Edge of Runway and Taxiway

Prior to surface water runoff entering the attenuation tanks it enters pollution monitoring chambers, see Figures 4-4 and 4-5.

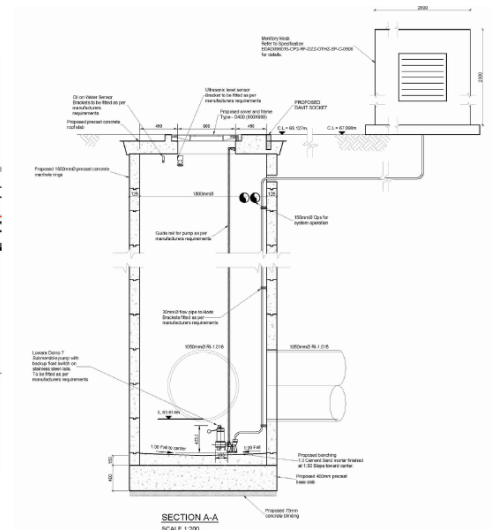
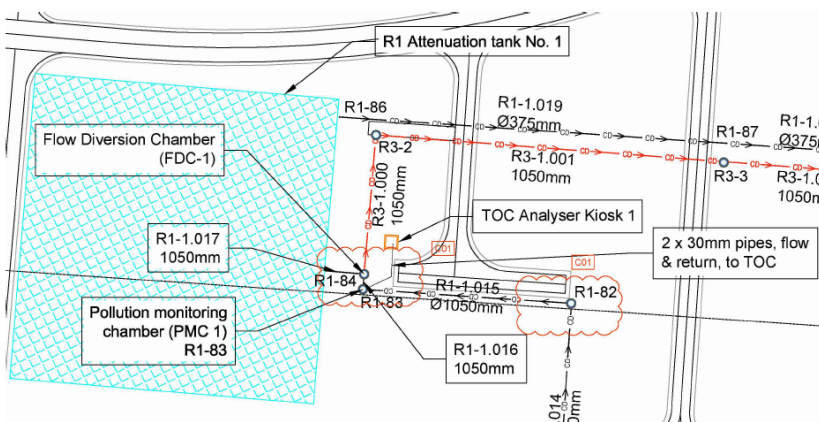


Figure 4-4: Runway 1 R1 Storm Runoff Attenuation Tank

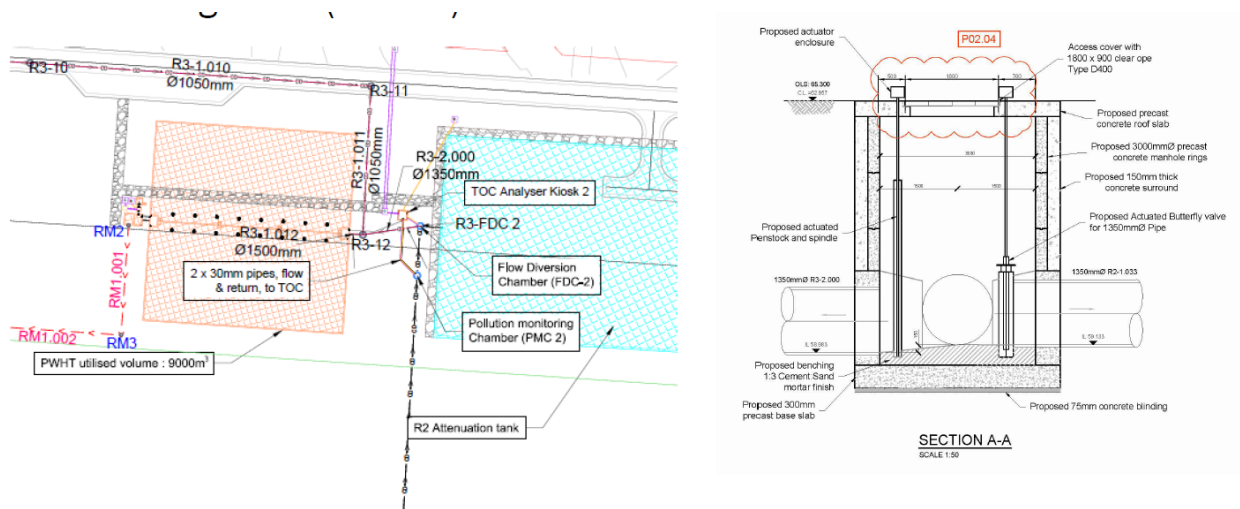


Figure 4-5: Runway 2 R2 Storm Runoff Attenuation Tank

Each pollution monitoring chamber location has: a rain gauge, a level sensor to detect water level in the chamber, an oil on water sensor to detect for oil products as may be present, and a sampling point that facilitates TOC sampling which is used to determine BOD.

Figure 4-6 illustrates the process flow diagram for the pollution monitoring system at the outfalls from runway 1 east and west outfalls.

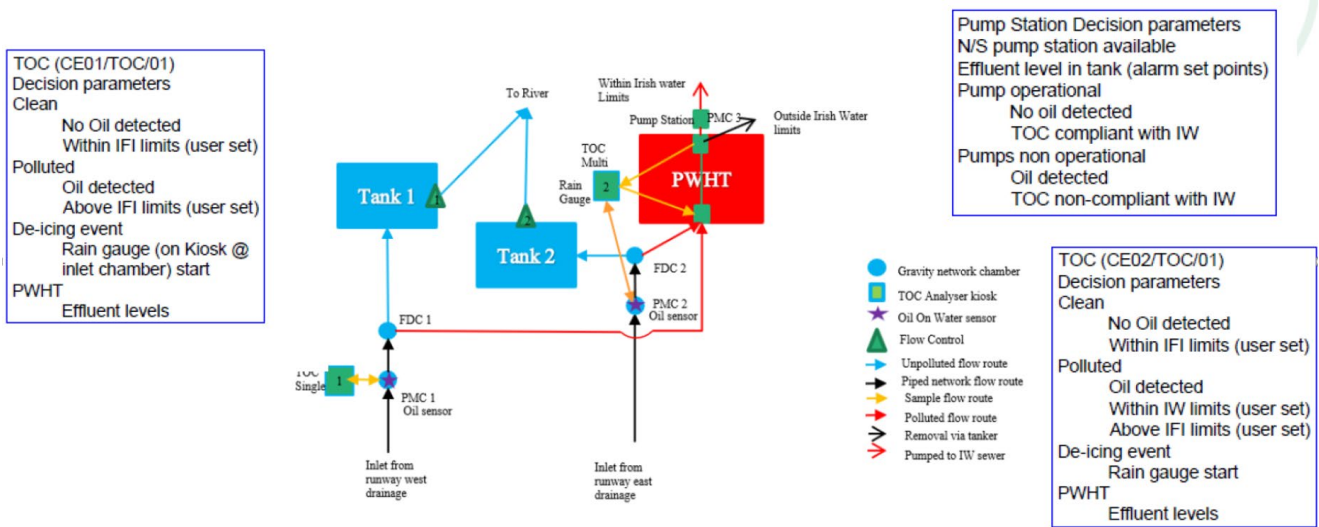


Figure 4-6: Process Flow Diagram

Pollution is deemed to occur if:

- TOC exceeds a present limit set to reflect summer and winter BOD conditions (3 mg/l BOD in summer and 5 mg/l BOD in winter) as required by Irish Fisheries Ireland, or
- if oil is found to be present.



In the event that pollution is found to be present flows are directed to the PWHT tank and pumped thereafter to sewer subject to emission limits being below Irish Water pre-defined limits.

In the event that de-icing agents are used, a manual button is pressed. Thereafter two times the first volume of runoff as advised by the rain gauge is directed to the PWHT tank. Following a further volume of runoff equal to two times the first volume, flows from the PWHT tank are then directed to sewer.

4.2 Pathways to Receiving Surface and Ground Waters Following Construction

4.2.1 Historical Considerations Pre-Construction

Section 3.2 (previous studies) shows historical evidence at the APEC 5 site of:

- Groundwater having elevated concentrations of PFOS and PFOA which exceed:
 - *USEPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater.*
 - *United States Environmental Protection Agency (USEPA) Drinking Water Advisories for PFOS and PFOA.*
- Surface water concentrations of PFOS and PFOA which:
 - *Are less than Maximum Admissible Concentration (MAC) for Total PFOS 36,000 ng/l (or 36 µg/l) as classified by European Communities (Quality of Surface Water intended for abstraction of drinking water) Regulations 1989 (S.I. No. 1989).*
 - *Exceed the Annual Average EQS for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015 is 0.65 ng/l.*

4.2.2 Residual Sources of PFOS/PFOA Following Construction

4.2.2.1 Overview

As shown in Appendix 9 drawing APEC 5 Sub-Formation, the sub-formation for the runway development works within the APEC 5 site was primarily founded on bedrock. A smaller sub-formation area along the northern boundary and in the northeast corner of the APEC 5 site was founded on soil. Soil analysis in this location showed evidence of PFOS/PFOA contamination.

All soil samples from trial pits which detected elevated PFOS/PFOA within the APEC 5 site (refer to Table 3-1 and Appendix 4 drawings) were located either on sub-formation bedrock or on soil.

During the excavation and removal of material from the APEC 5 site:

- All PFAS impacted soil above the sub-formations (for both stabilisation works and grass cover areas) was excavated and reused as backfill to storm drainage attenuation tanks PHWT and R2.
- PFAS contaminated soil below the sub-formations (for both stabilisation works and grass cover areas) was left in place.



Residual contamination may therefore be present in:

- The undisturbed bedrock below the excavated sub-formation.
- Insitu soil materials below the sub-formation.
- Groundwater.

Groundwater monitoring results from:

- GW4 in March 2019 indicated PFAS was present in groundwater within bedrock below the APEC 5 site, refer to RBFCC document *Management of Soils at 'Apec 5' During Groundworks*¹⁴.
- October 2018 (Table 3-5) indicated PFAS was present in groundwater within bedrock below the APEC 5 site.

Surface water monitoring completed at SW2-3 (Figure 3-4) in March 2019 indicated PFAS was present downstream of the APEC 5 site, refer to RBFCC document *Management of Soils at 'Apec 5' During Groundworks*¹⁴.

Limited environment samples from a number of media were collected by RBFCC within and adjacent to the APEC 5 site (14th August 2019 and 24th October 2019) and analysed by ALS Laboratories comprised:

- Soil results from excavated surface at CH 760 (2 no. samples), located approximately 90 m east of the APEC 5 site boundary, see Table 4-1.
- Bedrock sample results at CH 690 located approximately 20 m east of the APEC 5 site boundary, see Table 4-1.
- Groundwater Sample located on excavated surface at CH 760, see Table 4-2.
- Surface Water Sample (Pre Works) located at live channel on site referenced as SW1 (vicinity of SW3-1 and upstream of SWML 2), see Table 4-3 and Figure 3-4.
- Surface Water Sample (Post Works up to August 2019) located at live channel on site referenced as SW2 (same location as SW1), see Table 4-3 and Figure 3-4. These locations should not be confused with SWML1 and SWML2 shown on Figure 2-1.

Additional bedrock samples were collected by RBFCC on 24th October 2019 from:

- Bedrock from APEC 5 excavation residing near the East Compound (S1).
- Bedrock from the APEC 5 stockpiles (S2).

Certificates of Analyses are presented in Appendix 11.

¹⁴ EDAD98015-CP2-RF-H-ZZ-RWYW-FM-W-1533-RBFCC_MANAGEMENT OF SO Rev. No. 3



4.2.2.2 Soil and Bedrock

This report does not consider it appropriate to use USEPA guideline values for residential or commercial soils at North Dublin Airport on the APEC 5 site. Whilst it is possible that residual PFOS/PFOA contamination may be present in the underlying soil and rock formation it is considered that groundwater sampling with reference to USEPA Drinking Water Advisory guideline values will adequately assess the impacts of contamination as may be present. Nevertheless, contaminants as may be present in soils are a potential source of ongoing risk to groundwater.

Table 4-1: Soil and Bedrock Sampling Results August 2019: PFOS/PFOA Screening

Parameter	Units	Soil Surface - CH 760	Soil Surface- CH 760 Replicate	Bedrock @ 0.2m CH 690	S1	S2
		14/08/19	14/08/19	14/08/19	24/10/19	24/10/19
PFOS	ug/kg	3.13	2.14	3.32	<0.5	<0.5
PFOA	ug/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Results from the in-situ soil and bedrock below the extent of excavation works near APEC 5 in August 2019 indicate the presence of PFOS contamination in soil and bedrock. PFOS concentrations were within the range outside of the indicated plume in Figure 3-2 (pre-construction), which ranged from below the Limit of Detection to 7.86 ug/kg.

PFOA concentrations in August 2019 were below the Limit of Detection. PFOA concentrations were within the range outside of the indicated plume in Figure 3-2 (pre-construction), which ranged from below the Limit of Detection to 2.44 ug/kg.

4.2.2.3 Groundwater

The following Generic Assessment Criteria (GAC) for leachate and groundwater has been referenced for assessing the groundwater quality beneath the site:

- USEPA: Drinking Water Advisory Limit Value of 0.07 µg/l for Total PFOS and PFOA substances.
- USEPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater: PFOS and its salts limit value of 1 µg/l. This proposed guideline value (annual mean) is the concentration in groundwater below which the danger of deterioration in the quality of the receiving groundwater is avoided.

This report does not consider the *Draft Directive of the European Parliament and of the Council on the Quality of Water Intended for Human Consumption (recast)*. This has a limit value of 0.1 µg/l for 'Sum of PFASs', which includes the sum of 20 No. per and polyfluoroalkyl substances considered a concern for water intended for human consumption. The USEPA Drinking Water Advisory guideline values are more focused on the substances of concern for this assessment, Total PFOS and PFOA are therefore considered adequate to use.



Table 4-2: Groundwater Monitoring Results August 2019: PFOS/PFOA Screening

Parameter	Units	Guideline Values	Groundwater - APEC 5 GW1 ³ (located at CH 760)
PFOS	ng/l	1,000 ¹	816
		70 ²	816
PFOA	ng/l	70 ²	324

Note 1: USEPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater.

Note 2: United States Environmental Protection Agency (USEPA) Drinking Water Advisories for PFOS and PFOA.

Note 3: GW1 sample was a surface water grab samples and was not collected from a monitoring well.

The reported concentrations are screened against the USEPA Drinking Water Advisory Limit Value of 70 ng/l (0.07 µg/l) and the EPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater limit value for PFOS of 1,000 ng/l (1 µg/l).

The concentration of PFOS in groundwater at APEC 5 falls below the proposed EPA groundwater quality annual average limit value of 1,000 ng/l. The proposed USEPA Drinking Water Advisory limit value of 70 ng/l (0.070 µg/l) was exceeded for both PFOS and PFOA.

4.2.2.4 Surface Water

The following GAC for inland surface water has been referenced for assessing the impacts of PFOS/PFOA contamination on receiving surface waters:

- S.I. No. 386 of 2015 European Union Environmental Objectives (Surface Water) (Amendment) Regulations, 2015.

Table 4-3: Surface Water Monitoring Results August 2019: PFOS/PFOA Screening

Parameter	Units	MAC ^{Note 1}	Average Annual EQS Concentration ^{Note 2}	Surface Water - APEC 5 Pre Works - SW1 (vicinity of SW3-1)	Surface Water - APEC 5 Post Works - SW2 (vicinity of SW3-1)
PFOS	µg/l	36	0.00065	0.0160	0.0130
PFOA	µg/l	36	0.00065	0.0192	<0.0100

Note 1: Maximum Admissible Concentration (MAC) for Total PFOS 36,000 ng/l (or 36 µg/l) as classified by European Communities (Quality of Surface Water Intended for Abstraction of Drinking Water) Regulations 1989 (S.I. No. 1989) is a threshold intended to protect the aquatic environment from short-term toxic effects.

Note 2: The Annual Average EQS for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015 is 0.65 ng/l.



The detected concentrations do not exceed the 36,000 ng/ Maximum Allowable Concentration (MAC) for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015. The detected concentrations Total PFOS at the surface water monitoring points do however exceed the 0.65 ng/ Annual Average EQS for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015. Considering the persistence of PFOS in the environment, the PFOS Annual Average EQS concentration is likely to be the most representative limit value for PFOS in the surface water.

4.2.2.5 *Summary of Residual Sources at APEC 5*

The residual sources of PFOS/PFOA following completion of construction works on or adjacent to the APEC 5 site can be summarised as:

- Construction works removed contaminated soil within the APEC 5 site to sub-formation levels as described in Section 4.1.2. Soils and bedrock materials containing PFOS, albeit below the Danish EPA criteria, outside the APEC 5 site and bedrock within the APEC 5 site present below formation levels were not removed and may give rise to residual contamination of surface and ground waters.
- Monitoring of ground and surface waters post excavation has shown evidence of PFOS and PFOA contaminants being present suggesting that residual contamination linked to the APEC 5 site remains.

4.2.3 Potential Pollutant Linkages

The soil and bedrock materials underlying the excavated formation within and external to the APEC 5 site and the underlying groundwater below and downgradient of the APEC 5 site therefore continue to provide a source of PFOS and PFOA contamination.

Rainwater has potential to enter underlying contaminated materials not removed during construction and groundwater and thereafter to convey contaminants as may be present to potential receptors downgradient of the APEC 5 footprint.

Groundwater related pathways within/below the APEC 5 site are considered to be:

- Weathered bedrock and underlying bedrock.
- Redundant boreholes.
- The P4 filter drain which may provide connectivity to weathered bedrock.
- Faults in the Malahide Formation.
- Backfilled former drainage ditches adjacent to the APEC 5 site.

Surface water related pathways that may facilitate deep percolation inputs following rainfall are considered to be:

- Shallow surface soils.
- Weathered rock outcrop close to the formation of the stabilisation works at discrete locations adjacent to the main runway.
- P4 filter drain.
- Backfilled former drainage ditches adjacent to the APEC 5 site.



The P4 filter drain system which is founded on bedrock in vicinity of the APEC 5 site may therefore increase rainfall percolation inputs from an extended area to recharge groundwater in this area above that which occurred historically. The drain may also receive residual contamination from the APEC 5 excavation. In the event that surface water conveyance flows within the drain become contaminated they will discharge into downstream surface waters via the P4 surface water outfall.

Original surface drains adjacent to the APEC 5 location were left hydrologically unmodified and infilled with brown boulder clays. Even though the drains were below the sub-formation level they are unlikely to be a significant pathway for PFAS migration owing to them being infilled with cohesive material.

An assessment of surface water monitoring completed since the construction of the runway at APEC 5 is provided in Section 4.7.

4.2.4 Pathways to Groundwater Impacted by Construction

Section 4.1.6 describes how construction pavement works in the APEC 5 runway area will have reduced connectivity between surface waters and groundwater.

Section 4.1.4 describes how construction works removed glacial till overburden and reduced soil cover thickness following landscaping within the APEC 5 green areas. This may have provided increased connectivity between surface waters and groundwater as follows:

Construction exposed weathered bedrock in the APEC 5 soil stabilisation area and in the adjacent P4 drainage area and this may have provided increased connectivity locally between surface and ground waters.

Historic glacial overburden (black and brown boulder low permeability clays) previously provided a barrier to percolation inputs. This overburden was removed and replaced with brown boulder clay. However, the thickness of cover material during construction was reduced (see Cross-Section Drawings in Appendix 8) by up to c. 1.5 m. Rock is also present within circa 0.3 m of the surface at discrete locations. This may now result in an increased connectivity between surface and ground waters within and adjacent to the APEC 5 area.

Investigation wells developed in the area in 2018 were decommissioned by backfilling with bentonite and capping with boulder clay and are unlikely to provide a conduit between surface and ground waters.

Appendix 2 shows green area drainage layout construction drawings. Figure 4-2 illustrates the proximity of the P4 drain to the APEC 5 footprint. The new P4 surface filter drain was constructed within green areas to drain and convey surface water runoff from the P4 catchment area. The P4 drain, albeit removed from APEC 5 excavation and material stockpiles, was nevertheless constructed adjacent to the excavated APEC 5 footprint.

The invert is primarily founded on bedrock in vicinity of the southern boundary of the APEC 5 site and provides connectivity to the underlying weathered bedrock. The P4 drain:

- May act as a subsurface drain for adjacent soils that may contain residual contamination, and /or
- May facilitate surface water derived recharge of the underlying groundwater if percolation through weathered bedrock occurs.



4.2.5 Pathways to Surface Waters Removed from APEC 5 Footprint

Surface runoff from both the APEC 5 catchment and green plan area catchment 4 are conveyed through the P4 filter drain.

If saturated “perched” conditions below the drain provide connectivity to residual contamination contained within underlying materials (soil or bedrock) it is possible that the surface water drain flow may convey residual contamination within soil or bedrock into receiving surface waters.

Appendix 3 Historic Drain Locations drawing shows that historically surface drains were present in the vicinity of the APEC 5 footprint (to the north, east and south). Monitoring in 2018 showed elevated concentrations of PFOS and PFOA in these historic drains. The original surface drains adjacent to the APEC 5 location were left hydrologically unmodified and backfilled cohesive brown boulder clay material. Even though the drains were below the sub-formation level infill using cohesive material suggest there are unlikely to remain a pathway for PFAS migration.

4.2.6 Pathways to Surface and Groundwaters via Bedrock Faults

Figures 2-1 and 3-5 shows:

- One fault underlying the APEC 5 footprint running north-south.
- One fault north of the APEC 5 footprint running east west.

Faults may either cause either:

- A difference in groundwater elevations either side of the fault, or
- a preferential path for groundwater flows.

There is insufficient evidence to determine how faults in the area may be influencing groundwater flow(s) below the APEC 5 footprint and adjacent lands.

4.3 Sampling Locations

Refer to Appendix 12 which shows available borehole logs.

To support the risk assessment, additional surface water and groundwater sampling and monitoring was (and continues to be) undertaken from February 2020. Results from February 2020 to July 2021 are presented below.

Figure 2-1 shows the existing surface water and groundwater monitoring locations.



Figure 4-1 shows the locations of:

- Green area surface water catchments P4 and P5.
- APEC 5 source.
- Surface water outfalls.

4.4 Groundwater Sampling

During previous site investigations undertaken in 2018, 6 No. groundwater monitoring wells were installed at the APEC 5 site. During construction of the North Runway Development these monitoring wells were decommissioned over time to facilitate the permanent works. BH09, BHX and BHY were available up to February 2020.

Due to the limited number of available groundwater monitoring wells, additional existing monitoring wells BHX and BHY were also sampled during February 2020. Both wells are located cross gradient with respect to groundwater flow from the source zone at APEC 5.

Figure 2-1 shows:

- APEC 5 Training Ground Site Boundary (red line).
- Existing groundwater monitoring wells (GWMP 4 and GWMP 5 installed in September 2020 to monitor the movement of the APEC 5 material to the attenuation tanks).
- Decommissioned wells in the vicinity of APEC 5 (GW4, GW5, GW6, BHX, BHY, BH08, BH09 and BH10).

Table 4-4 presents details of the location of monitoring points.

Table 4-4 for reference purposes under the heading Monitoring Status also describes: Historic monitoring locations decommissioned during construction, those borehole samples were used in the preparation of this report in February 2020 and details of subsequent boreholes post February 2020. Table 4-4 over was prepared to avoid confusion that may occur when reading related reports as some borehole notations are similar.

Table 4-4: Groundwater Monitoring Locations (Active and Decommissioned)

Monitoring Location	Location Description	Monitoring Status	Depth to Rock
BH08	Shallow groundwater borehole located north of APEC 5	Decommissioned	1.3 m <small>Note 1</small>
BH09	Shallow groundwater borehole, located north of APEC 5	Decommissioned	5.0 m <small>Note 1</small>
BH10	Shallow groundwater borehole, located north of APEC 5	Decommissioned	2.7 m <small>Note 1</small>



Monitoring Location	Location Description	Monitoring Status	Depth to Rock
BHX	Shallow groundwater borehole, located c. 400 m west of APEC 5	Decommissioned	3.5 m <small>Note 3 also referred to as BH102</small>
BHY	Shallow groundwater borehole, located c. 640 m east of APEC 5	Decommissioned	6.0 m <small>Note 3 also referred to as BH122</small>
GW4	Shallow boreholes within APEC 5	Decommissioned	2.0 m <small>Note 2</small>
GW5	Shallow boreholes within APEC 5	Decommissioned	1.5m <small>Note 2</small>
GW6	Shallow boreholes within APEC 5	Decommissioned	2.4 m <small>Note 2</small>
GWMP 4	Shallow groundwater borehole, located c. 1.2 km east of APEC 5	Active since Sept 2020	12.0 m
GWMP 5	Shallow groundwater borehole, located c. 1.3 km east of APEC 5	Active since Sept 2020	17.0 m

Note 1 Additional Ground Investigation Work 2018 Causeway Geotech Report 17-1398

Note 2 Dublin Airport Fire Station 2017 Causeway Geotech Report 17-1033

Note 3 Factual Ground Investigation Report Ground Investigations Ireland 2017

4.5 Surface Water Sampling

Refer to Appendix 1 showing locations of outfall on aerial photographs and Appendix 2 showing drainage outfall locations and Table 4-5 which describes monitoring locations.

To support this risk assessment, surface monitoring has been carried out since February 2020.

Two downgradient locations (SWML 2 and SWML 3) were used to identify the potential discharge zone for shallow groundwater.

The boundary of the APEC 5 site and surface water sample locations are identified below in Table 4-5 and presented in Figure 2-1.

Monitoring results for Total PFOS and PFOA since February 2020 are presented in Figures 4-7 to 4-8 and Table 4-7.

Table 4-5 presents details of the location and orientation of surface water monitoring points. Appendix 1 shows the locations aerial photographs. Refer also to Table 4-7 for surface water monitoring results.



Table 4-5: Surface Water Monitoring Locations

Monitoring Location ID	Description	Monitoring Status
SWML 1	Located west of the site boundary (River Ward Catchment).	Decommissioned
SWML 2	<p>Open channel confluence post construction receiving storm water from both P3 and road drainage located at the northern site boundary along R108. Water quality at this location may be impacted by road runoff from both sides of the road and P3 discharges. P3 discharges maybe impacted by APEC 5. (Prior to construction historic flows in this drain would have received flows from road drainage and lands north of APEC 5.) It is unclear to what extent, if any, groundwater, or historic drain outfalls that were sealed during construction, have on groundwater quality. The outflow from this confluence may discharge to the River Ward Catchment via sub surface drain going north or via surface flow going to the SWML 3 outfall.</p> <p>SWML 2 is approximately 30 m north and downstream of the pre-construction monitoring location SW3-1 (Figure 3-4).</p>	Active
SWML 3	<p>Open channel confluence post construction receiving storm water from both P8 and road drainage located at the northern site boundary along R108.</p> <p>Water quality at this location may be impacted by road runoff from both sides of the road and P8 discharges. P8 may be impacted by APEC 5. Prior to construction, this drain would have received historic flows from road drainage and lands north of APEC 5. It is unclear to what extent, if any, groundwater or historic drain outfalls that were sealed during construction, have on groundwater quality. The outflow from this confluence discharges northwards via open channels to the River Ward Catchment.</p> <p>SWML 3 is approximately 30 m north and downstream of the pre-construction monitoring location SW2-3 (Figure 3-4).</p>	Active
SWML 4	Open channel located east of the site downstream of P4 and R1 outfalls and upstream of SWML 5(A). SWML 4 is also influenced by R108 road drainage.	Active



Monitoring Location ID	Description	Monitoring Status
	Outflows from the open channel flows at SWML 4 discharge to the (Forest Little Catchment (River Sluice)). P4 culvert outflows were monitored post runway construction. P4 outflows maybe influenced by APEC 5.	
SWML 5 (A)	Open channel along Forrest Road receives SWML 4 influence, R2 culvert charge and airfield hangars surface runoff, and downstream of P5 outfall (Forest Little Catchment (River Sluice)).	Active
SWML 5 (B)	Located east of the site boundary. Manhole located along graded strip east of TWY Kilo. Direct connectivity to surface runoff from airfield hangars.	Active
SWML 7 (A)	Located west of the site boundary. Open channel traversing the area of the OLS flight path, Kilreesk Road. Located downstream of P2. (River Ward Catchment)	Active
SWML 7 (B)	Located west of the site boundary. Open channel along the R122 traversing agricultural lands upstream of SWML 7(A) (River Ward Catchment).	Active
P2	P2 tank manhole beside R108 in southwest corner of airport boundary. (River Ward Catchment)	Active
P3	P3 tank manhole on beside R108 proximal (west) of substation. (River Ward Catchment).	Active
	P3 is in the vicinity pre-construction monitoring location SW3-1 (Figure 3-4).	
P4 Headwall	Receiving charge from R1 Attenuation tank. (Forest Little Catchment (River Sluice))	Active
P7	P7 tank manhole along R108 south of Keelings. (River Ward Catchment)	Active
P8	P8 tank manhole on beside R108 and east of substation. (River Ward Catchment). P8 is in the vicinity pre-construction monitoring location SW2-3 (Figure 3-4).	Active
R1 Headwall	Receiving charge from R1 Attenuation tank. (Forest Little Catchment (River Sluice))	Active
R2 Culvert	Culvert receiving charge from P5 tank and R2 attenuation tank. Culvert located along the R108 behind Kavanagh's residence. (Forest Little Catchment (River Sluice))	Active



4.6 Groundwater Assessment

This section discusses the results from the groundwater monitoring and undertakes an assessment of the groundwater laboratory data from available monitoring wells at the site as of February 2020.

Figure 3-6 shows the estimated groundwater flow direction to be from south to north determined and replicated from an earlier *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment, November 2018*. Based on the findings of the site investigations and from the previous CSM (Figure 3-1), the November 2018 report considered that groundwater beneath the site was most likely migrating and discharging laterally via fracture controlled flow within the upper 10 metres of limestone bedrock and discharging to the local surface water drainage network.

However, there is insufficient evidence to confirm or otherwise challenge assumptions made in the November 2018 report and this report recommends the need for additional groundwater wells to be installed to better inform groundwater flow direction(s).

4.6.1 Groundwater Assessment Criteria

Refer to Section 4.6.1 for the assessment criteria used for groundwater.

4.6.2 Chemical Results for Groundwater

Summary results of the chemical analyses with maximum concentrations detected in each monitoring well are shown in Table 4-6 below, with available analysis certificates issued by ALS Environmental included in Appendix 13 of this report.

Table 4-6 chemical sample concentrations for PFOS and PFOA since February 2020 were screened against the USEPA Drinking Water Advisory Limit Value of 0.07 µg/l and the *EPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater* limit value for PFOS of 1 µg/l. All samples analysed at BH9, BHX and BHY were below the Laboratory Limit of Detection (LOD) for PFOS/PFOA. PFOS/PFOA was detected in GWML 4 and GWML 5 but was below both limit values.

Table 4-6: Groundwater Monitoring Results Between February 2020 and July 2021 Maximum PFOS/PFOA Values

Parameter	Units	No of tests	LOD (see note 3)	Guideline Values	Exceedances	BH09	BHX	BHY	GWML 4	GWML 5
Total PFOS	ng/l	3-24 ⁴	<1	1,000 ¹ /70 ²	0	<0.65	<3.25	<3.25	5.0	5.0
PFOA	ng/l	3-24 ⁴	<1	70 ²	0	<1	<5	<5	5.0	3.25

Note 1: *USEPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater*

Note 2: United States Environmental Protection Agency (USEPA) Drinking Water Advisories for PFOS and PFOA

Note 3: <LOD: Below Laboratory Limit of Detection Appendix 2 shows that the LOD varies between samples and is between <1 and <5 ng/l for total PFOS and between <0.65 and <3.25 ng/l for PFOA. This is well below the lower guideline limit of 0.07 µg/l (70 ng/l) and is therefore acceptable.

Note 4: 3 No. of tests completed for BH09, BHX and BHY. 24 No. of tests completed at GWML 4 and 22 No. of tests completed at GWML 5.



4.7 Surface Water Assessment

This section discusses the results from the surface water monitoring undertaken between February 2020 and July 2021. Surface water samples were collected during this period from SWML 2, 3, 4, 5(A), 5(B), 7(A) and 7(B) as indicated in Figure 2-1 and Table 4-5.

Laboratory analysis of surface water samples was undertaken by ALS Laboratories with available Laboratory Analytical Reports presented in Appendix 13.

4.7.1 Surface Water Assessment Criteria

Refer to Section 4.2.2.4 for the GAC used for surface water.

4.7.2 Chemical Results for Surface Water

The results of the chemical sample analysis for Total PFOS are presented in Table 4-7 and are screened against S.I. No. 386 of 2015 European Union Environmental Objectives (Surface Water) (Amendment) Regulations, 2015 threshold values.

Table 4-7: Average of Total PFOS and PFOA Surface Water Monitoring Results Between February 2020 and July 2021

Locations	Units	No of tests Note 1	MAC Note 2	Average Annual EQS Concentration Note 3	Max Total PFOS	Average Total PFOS	Standard Deviation Total PFOS	Average PFOA	Standard Deviation PFOA
SWML 1	ng/l	1	36,000	0.65	2.7	2.7	0	1.42	0
SWML 2	ng/l	29	36,000	0.65	17.5	4.90	3.41	4.02	4.41
SWML 3	ng/l	18	36,000	0.65	34.2	12.28	9.12	4.48	2.98
SWML 4	ng/l	41	36,000	0.65	138	20.31	32.36	8.70	11.42
SWML 5(A)	ng/l	40	36,000	0.65	403	36.05	61.52	14.95	14.65
SWML 5(B)	ng/l	37	36,000	0.65	1,400	209.74	324.93	80.51	118.82
SWML 7(A)	ng/l	27	36,000	0.65	6.84	1.81	1.58	2.13	1.95
SWML 7(B)	ng/l	21 ⁴	36,000	0.65	5.01	1.60	1.12	1.65	0.78
P2	ng/l	20	36,000	0.65	4.51	2.71	1.02	2.38	0.60
P3	ng/l	20	36,000	0.65	9.37	2.93	1.66	2.34	0.94
P4 Headwall	ng/l	15	36,000	0.65	20.5	9.35	4.60	4.42	1.15
P7	ng/l	19	36,000	0.65	3.32	1.68	0.71	2.12	0.80
P8	ng/l	19	36,000	0.65	8.05	5.19	1.98	2.79	0.99
R1 Headwall	ng/l	16	36,000	0.65	6.65	3.60	1.92	2.23	0.87



Locations	Units	No of tests Note 1	MAC Note 2	Average Annual EQS Concentration Note 3	Max Total PFOS	Average Total PFOS	Standard Deviation Total PFOS	Average PFOA	Standard Deviation PFOA
R2 Culvert	ng/l	15	36,000	0.65	31.10	21.10	8.21	9.23	3.43

Note 1: Number of test results used to calculate mean and standard deviation.

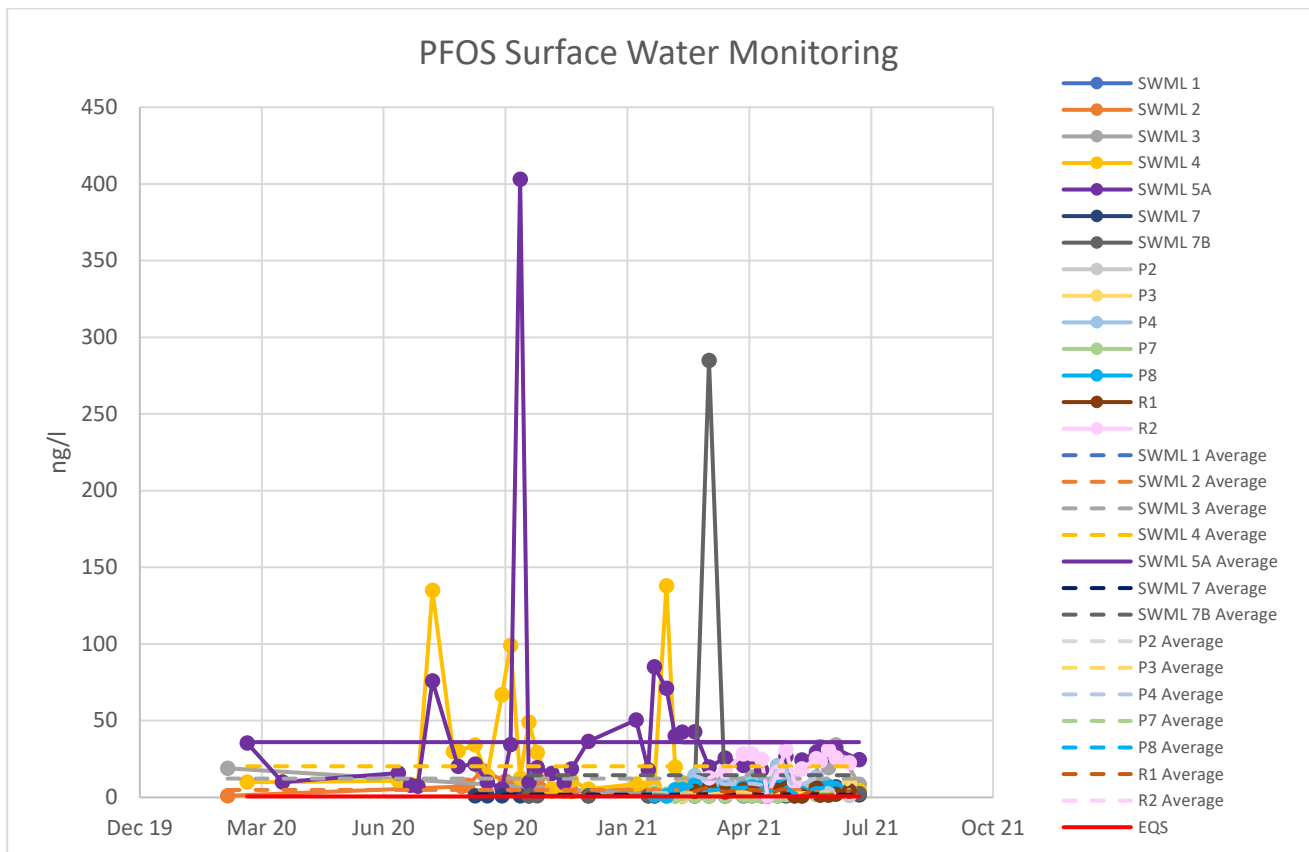
Note 2: Maximum Admissible Concentration (MAC) for Total PFOS 36,000 ng/l (or 36 µg/l) as classified by European Communities (Quality of Surface Water intended for abstraction of drinking water) Regulations 1989 (S.I. No. 1989) is a threshold intended to protect the aquatic environment from short-term toxic effects.

Note 3: The Annual Average EQS for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015 is 0.65 ng/l.

Note 4: Does not include March 2021 result adjusted to remove sampling error associated with SWML 5(B).

The maximum Total PFOS value of 285 ng/l at SWML 7(B) was recorded during the March 2021 round of surface water sampling. It is likely that this spike in Total PFOS is erroneous as all surface water samples collected in both SWML 7(B) and SWML 7(A) (upstream of SWML 7(B)) have reported values below the laboratory limit of detection (1 ng/l) with the exception of the March 2021 sample for SWML 7(B). This result will be discounted from the risk assessment. Should elevated Total PFOS in SWML 7(B) be reported in subsequent monitoring, this will be further addressed.

Monitoring results for Total PFOS and PFOA since February 2020 are presented in Figures 4-7 and Figure 4-8.



Note 1. EQS refers to 0.65 ng/l Annual Average EQS for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015

Note 2. No concentrations of surface water monitored since February 2020 exceeded the 36,000 ng/l Maximum Allowable Concentration (MAC) for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015

Figure 4-7: Total POS Surface Water Monitoring Results post February 2020

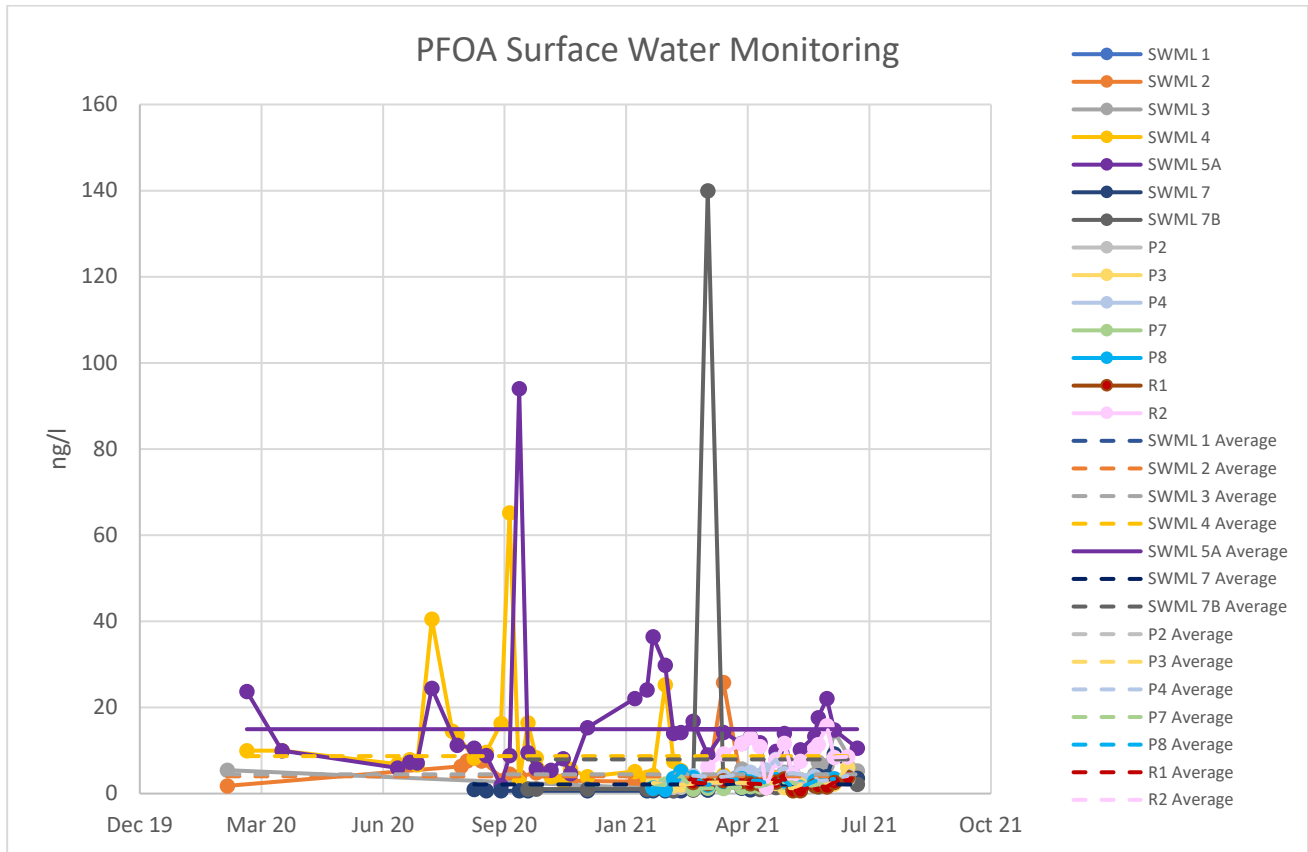


Figure 4-8: PFOA Surface Water Monitoring Results post February 2020

4.7.3 Residential and Commercial Soil Standards

Section 4.2.2 of this report identified that following the removal of contaminated material, residual concentrations of PFOS and PFOA are present below:

- Underlying soils and bedrock below and adjacent to the excavated APEC 5 footprint, which includes the 'Cut' area in the footprint of the North Runway.

This report does not consider it appropriate to use USEPA guideline values for residential or commercial soils at North Dublin Airport on the APEC 5 site. Whilst it is possible that residual PFOS/PFOA contamination may be present in the underlying soil and rock formation it is considered that groundwater sampling with reference to USEPA Drinking Water Advisory guideline values will adequately assess the impacts of contamination as may be present. Nevertheless, contaminants as may be present in soils are a potential source of ongoing risk to groundwater.



4.8 Results and Discussion of Environmental Monitoring

4.8.1 Groundwater

Prior to construction and as detailed in Section 4.6, the initial November 2018 assessment determined groundwater flow was most likely migrating and discharging laterally via fracture-controlled flow within the upper 10 metres of limestone bedrock and discharging to the local surface water drainage network in a primarily northerly direction. However, this report recommends the need for additional boreholes to better inform groundwater flow direction.

The summary findings of the 2018 DQRA report *Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment* are outlined below. However, this information is limited in scope and assessments need to be treated with caution:

- The 2018 DQRA confirmed that PFAS contamination remains in the shallow bedrock groundwater on-site.
- Showed groundwater monitoring locations (GW4, GW5, GW6 & BH08) exceeded United States Environmental Protection Agency (USEPA) Drinking Water Advisories for PFOS and PFOA threshold values.
- During January 2018 the proposed USEPA Drinking Water Advisory limit value of 70 ng/l (0.070 µg/l) was exceeded in the on-site source groundwater monitoring wells GW5 and GW6 and off-site groundwater monitoring well BH08 with respective concentrations of 2,354 ng/l, 745 ng/l and 244.1 ng/l recorded at these locations.
- During August to October 2018 the proposed USEPA Drinking Water Advisory limit was exceeded in on-site groundwater monitoring wells GW5 and GW6 although a slight decrease in the August 2018 Total PFOS & PFOA concentrations at GW5 and GW6 was recorded.
- The risk to down gradient mapped groundwater abstraction points, controlled waters, and potential end users of groundwater was discussed in Section 5 of the 2018 DQRA.

Post 2018 during the runway construction, investigation boreholes GW4, GW5, GW6, BH08, BH09, BH10, BHX and BHY were decommissioned progressively throughout the works. Post-APEC 5, construction monitoring continued at BH09, BHX and BHY see Table 4-6.

Prior to construction groundwater sampling, each well was purged three times after which a sample was taken from the same strata (bedrock). The wells were circa. 10.0 m deep, except for GWMP4 (14.5 m) and GWMP5 (19.0 m).

Sampling events up to February 2020 at borehole locations BH09, BHX and BHY, and between February 2020 and July 2021 at GWML 4 and GWML 5 for groundwater contamination at the site showed:

- PFOS/PFOA were below the LOD in BH9, BHX and BHY.
- PFOS/PFOA were detected in GWML4 and GWML5 but were below the USEPA Drinking Water Advisory Limit Value of 0.07 µg/l and the *EPA: A Proposed Approach for the Development and Application of Guideline Values for Groundwater* limit value for PFOS of 1 µg/l.
- PFOS and PFOA were both always < LOD in 2018 and in 2020.
- Post construction monitoring showed no evidence of PFOS.



It was not possible to carry out post construction monitoring at decommissioned boreholes which had previously shown evidence of elevated PFOS prior to construction.

4.8.2 Surface Water

Surface water flow above the APEC 5 site was previously considered to be in a northerly direction (2018 Dublin Airport North Runway APEC 5 Detailed Quantitative Risk Assessment Appendix 1). Post-construction, this is now controlled by the P4 drainage system.

Sampling, See Appendix 13, of surface waters at monitoring locations SWML 1, 2, 3, 4, 5(A), 5(B), 7(A), 7(B), P2, P3, P4, P7, P8, R1 and R2 between 2018 and 2021 identified residual concentrations of PFOS and PFOA.

The detected concentrations of Total PFOS at surface water monitoring points SWML 1, 2, 3, 4, 5(A), 5(B), 7(A), 7(B), P2, P3, P4, P7, P8, R1 and R2:

- Do not exceed the 36,000 ng/l MAC for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015.
- Exceed the 0.65 ng/l Annual Average EQS for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015.

Monitoring results from SWML 5(B), presented only in Table 4-7 and Appendix 13 of this report, indicate another source of PFAS at Dublin Airport. Because this report is focused on the drainage relative to the APEC 5 site and relevant surface water monitoring locations, SWML 5(B) has not been included in this assessment.

Considering the persistence of PFOS in the environment, the 0.65 ng/l PFOS Annual Average EQS concentration is assumed to be the most representative limit value for PFOS in the surface water. The results of the surface water sampling completed between February 2020 and July 2021 indicate that PFAS contaminants are being discharged to surface waters.

Contamination may occur via shallow groundwater migrating laterally to downgradient surface waters.

As such it is considered there may be an on-going risk posed to downstream surface water receptors from residual APEC 5 contamination. This is discussed further in Section 5 of this report.



5. RISK ASSESSMENT

The following section includes the risk assessment undertaken by FT to consider the potential on-going risk to human health, groundwater and surface waters from the presence of PFOS and PFOA contamination identified within groundwater beneath APEC 5 and within surface waters at the site removed from the APEC 5 source location.

5.1 Potential Pollutant Linkages

The Contaminants of Potential Concern (COPC) for the purposes of this assessment are concentrations of PFOS/PFOA contaminants within the groundwater and surface waters at the site which may be mobilised by groundwater recharge, groundwater flow, surface water runoff and groundwater discharge to surface water drains. If these contaminants are mobilised there is a potential that they may migrate towards down gradient groundwater abstraction points, on-site surface water features, and potentially be ingested by humans. Likewise, these contaminants may also discharge to the local rivers and affect aquatic life.

The contaminants listed below in Table 5-1 are assessed in the risk assessment.

The potential risk to aquatic receptors will be discussed in the context of the conceptual site model.

Table 5-1: Source-Pathway-Receptor Model

Contaminants	Migration/Exposure Pathways	Potential Receptors
Residual contamination of PFAS in unexcavated soil and bedrock beneath and adjacent to APEC 5. Ground and surface waters contaminated by PFAS.	Leaching of contamination from soils via rainwater infiltration. Vertical and down gradient migration of contamination via groundwater. Surface water run-off of contaminants. Human ingestion or dermal contact or inhalation of soils/dust and surface water or groundwater Preferential pathways in historic and redundant drainage systems. Basal recharge of surface water by shallow groundwater. P4 new drainage systems. Changes in ground permeability due to runway construction blocking natural flow paths. Faults diverting flow paths.	Down gradient groundwater and groundwater abstraction points. Surface water quality as informed by surface water monitoring at the following locations SWMLs 1, 2, 3,04, 5(A), 7(A) and 7(B). Aquatic life. Human health. Biota.

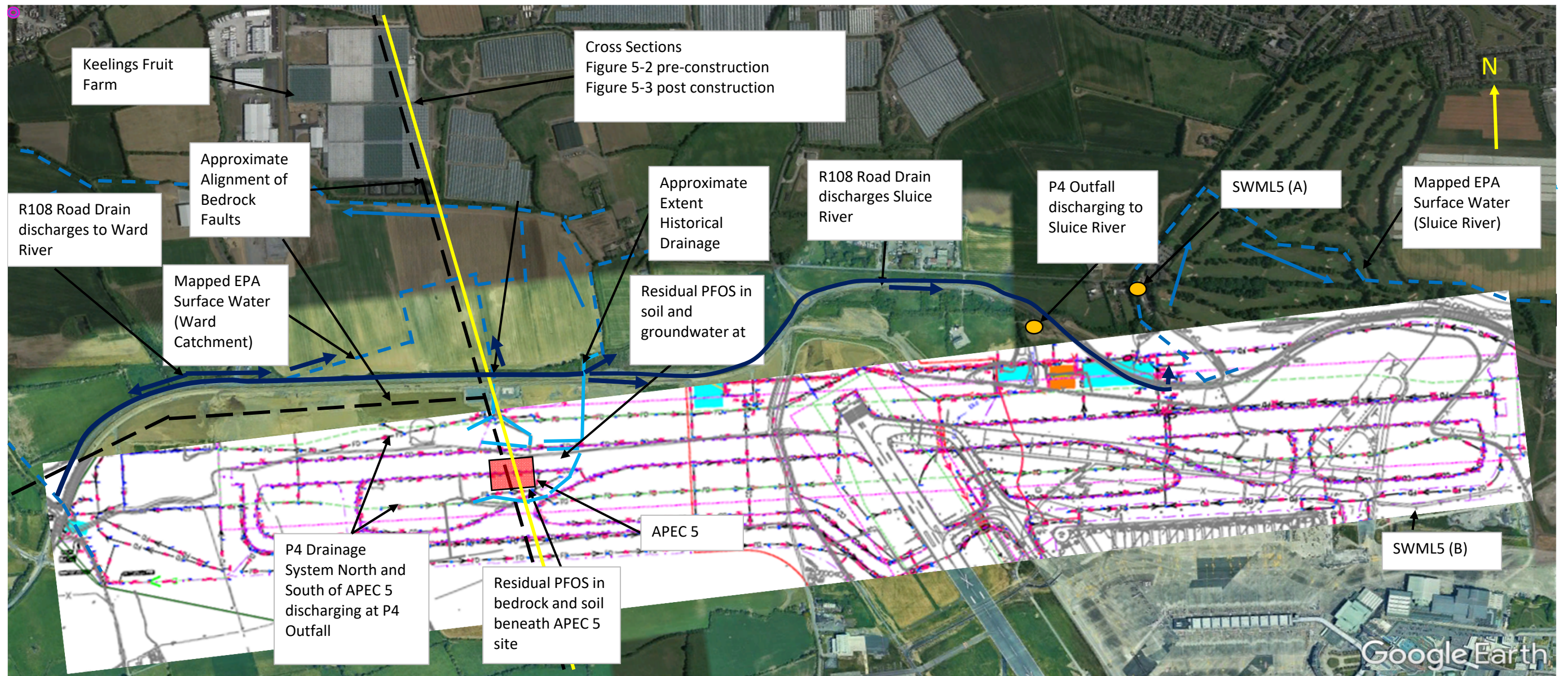


A Conceptual Site Model (CSM) of the site is presented graphically in Figure 5-1 (plan), Figure 5-2 (cross-section pre-construction) and Figure 5-3 (cross section post-construction). The CSM illustrates the conceptual understanding of the geology at the APEC 5 site.

The CSM indicates that the site is underlain by a thin (typically <3.0 m thick) Boulder Clay horizon, which in turn is underlain by Weathered Limestone bedrock of the Malahide Formation. At depth below the weathered zone the Malahide Formation comprises fractured argillaceous Limestone and Mudstone to the maximum depth of investigation at 10.0 m BGL.

Bedrock at the site is typically encountered between 1.0-5.5 m BGL and it is considered that (shallow) groundwater flow will be within the upper 10 metres of fractured bedrock. There will be some additional isolated flow along fractures and fissures located at depths up to 50 m BGL.

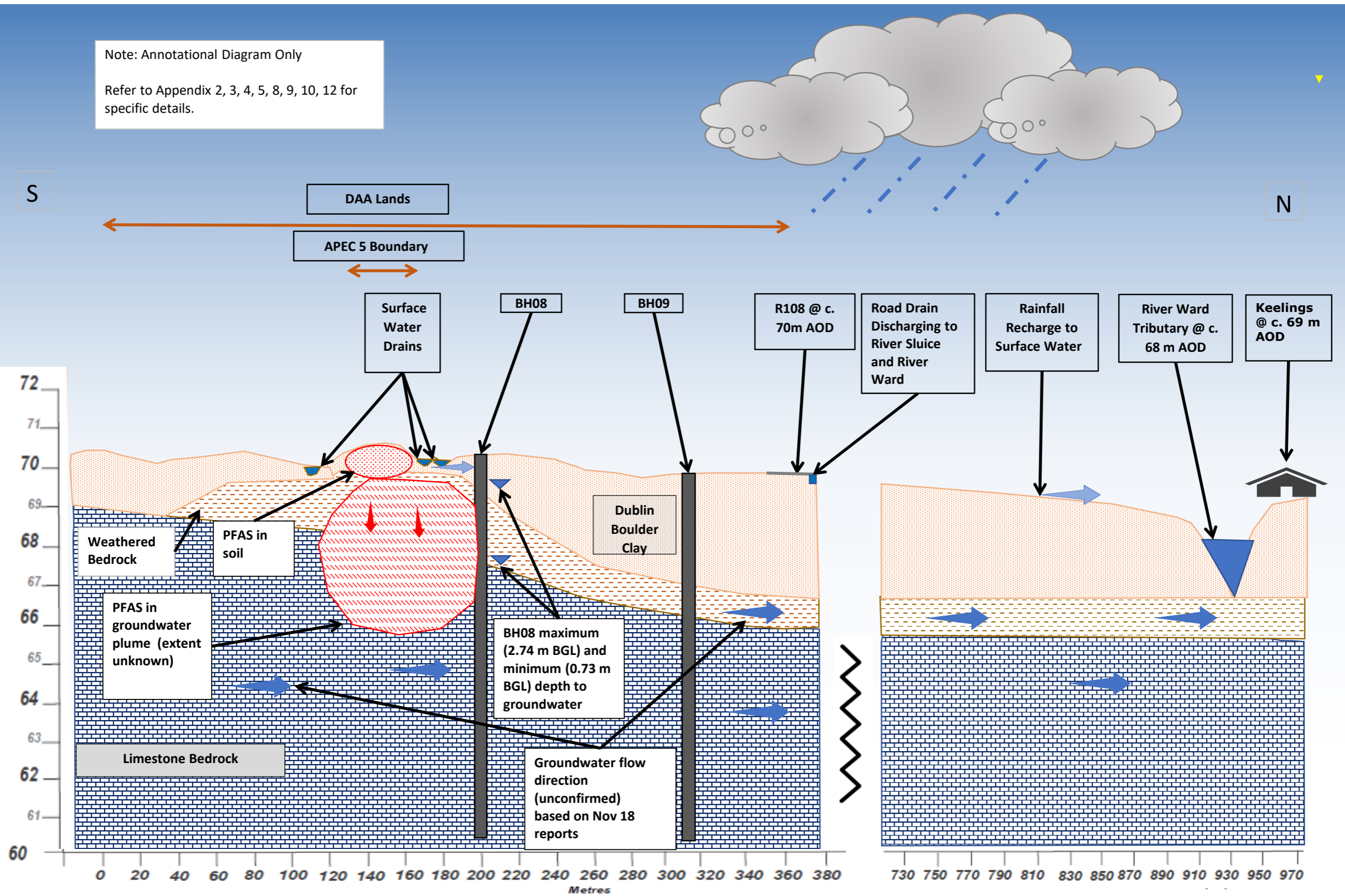
The GSI mapping (Figure 3-5) indicates the presence of fault zones (2 No.) across the site which may provide preferential flow of groundwater along the fault zones, or differences in groundwater elevation (see Table 3-6) either side of the faults. Variations in the depth to rock and the historic water table observations between off-site boreholes BH09 and BH10 suggests that the groundwater flow may be compartmentalised within these faults. The CSM cross section locations (Figures 5-2 and 5-3) do not show the fault lines. The extent of the contaminant plume is unknown and may be influenced by the faults.



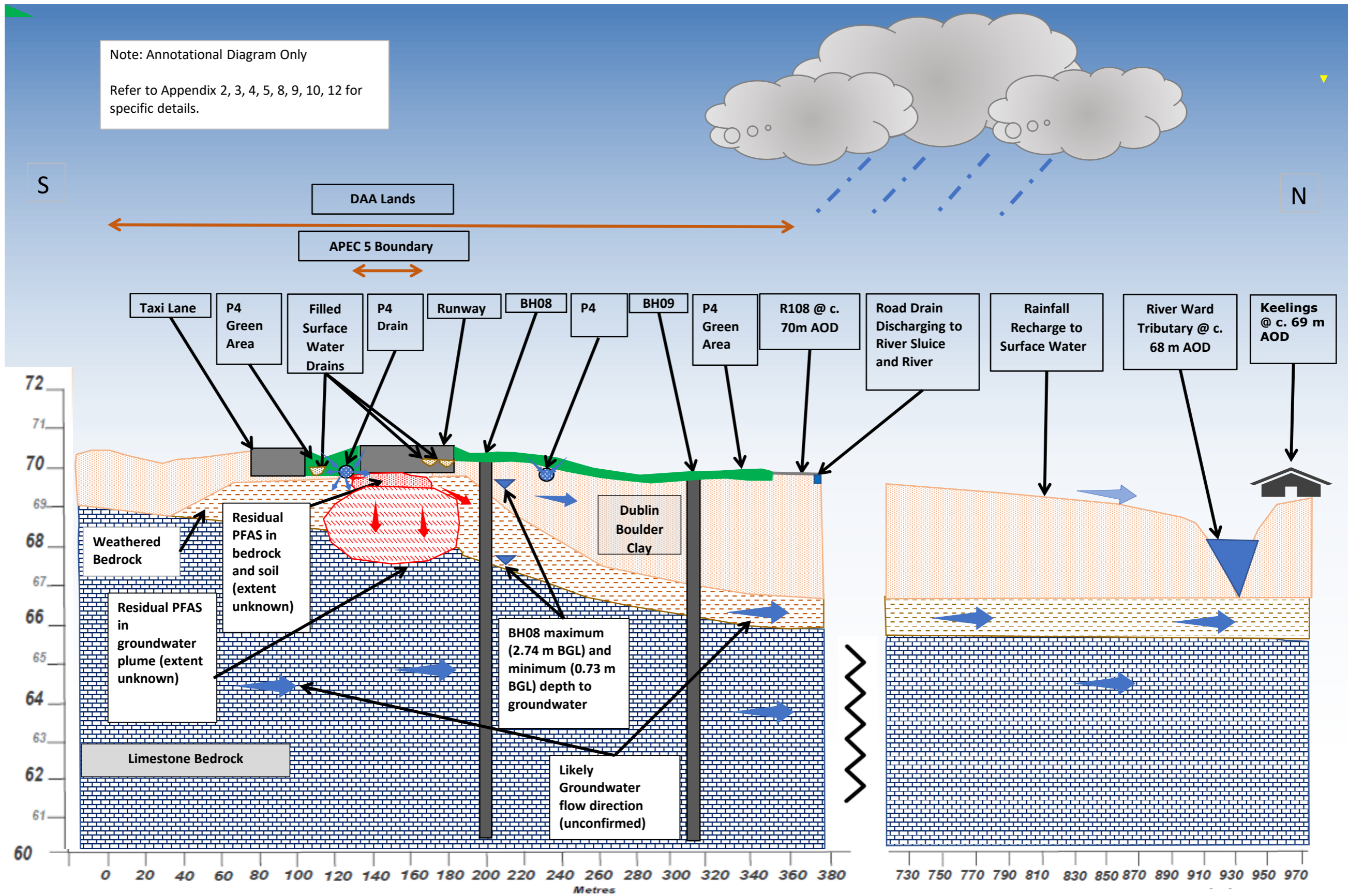
**FIGURE 5-1 POST CONSTRUCTION
SCHEMATIC CONCEPTUAL SITE MODEL - PLAN**

Note: Annotational Diagram Only

Refer to Appendix 2, 3, 4, 5, 8, 9, 10, 12 for specific details.



**FIGURE 5-2 PRE-CONSTRUCTION
SCHEMATIC CONCEPTUAL SITE MODEL - CROSS SECTION**



**FIGURE 5-3 POST-CONSTRUCTION
SCHEMATIC CONCEPTUAL SITE MODEL CROSS SECTION**



5.1.1 Contaminant Sources

Historical investigations carried out as part of the 2018 DQRA (*Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment*) showed residual concentrations sources of PFOS and PFOA impacting groundwater and downstream surface waters from the leaching and vertical migration of contaminants are considered present at the following locations:

- Within the bedrock groundwater beneath the APEC 5 site.
- Within soil below the APEC 5 site.
- Within shallow groundwater beneath the APEC 5 site.

The PFAS contaminant groundwater plume (extent unknown) in CSM Figure 5-3 has been illustrated as being smaller than that in CSM Figure 5-2 to reflect lower PFAS concentrations following: removal of contaminated soils; and reduced deep percolation inputs in the runway paved areas post construction.

Residual concentrations from other PFOS and PFOA source(s) east of APEC 5 as evidenced by Table 4-7 surface water monitoring results showed elevated PFAS concentrations in SWML-5(A &B). These are not assessed in this risk assessment because: they are removed from the APEC 5 contaminant source; and the P5 drainage network is isolated from the P4 drainage network.

5.1.2 Groundwater Migration Pathways

Historical investigations carried out as part of the 2018 DQRA (*Dublin Airport North Runway: APEC 5 Detailed Quantitative Risk Assessment*) showed evidence of PFOS and PFOA contamination in monitoring well BH08. BH08 is located outside of the northern APEC 5 boundary, see Figure 3-3.

The 2018 report concluded that there was a localised groundwater plume given that elevated PFAS in BH08 was not observed in BH09. Monitoring (2019) results from BH09 confirm that that PFAS contaminants within shallow groundwater have not migrated laterally within shallow groundwater to the extent where BH09 has been impacted. However, recorded water levels (Table 3-6) and Figure 3-3 indicate that groundwater flow direction may be influenced by the geological faults such that BH09 may not be down gradient of BH08.

Based on available data, the groundwater flow direction (below the APEC 5 site) and extent of the plume cannot be confirmed.

Groundwater levels in 2018 within and adjacent to the APEC 5 site ranged from 0.26 – 5.03 mBGL (Table 3-6).

The invert of the P4 drain to the south boundary of the APEC 5 site varies between 0.9 m and 2.0 m below ground elevation. The drain may therefore influence contaminant pathways in one of two ways:

- If surface water in the drain is at a higher elevation than groundwater following a storm event, then surface water runoff from the P4 filter drain may recharge groundwater.
- If surface water elevation in the filter drain invert is lower than saturated soil, then PFAS contaminated groundwater may enter the P4 filter drain.



Groundwater beneath the APEC 5 site may be discharging vertically and laterally to the local surface water drainage network.

There is insufficient evidence to determine the extent or other of hydraulic connections between groundwater within weathered bedrock below the Dublin Boulder Clay and surface water drains and or rivers north of and external to the airport footprint.

5.1.3 Surface Water Migration Pathways

Refer to Figure 2-1 for monitoring locations and Table 4-7 for Average PFOS and PFOA results between February 2020 and July 2021.

Receiving waters to the north of the site discharge to the Ward River, which flows into the Broad Meadow River at Swords.

The receiving water to the east of the site is the Sluice River.

Drainage from the western confines of the airport site previously discharged to the Ward River. Drainage from the central and eastern confines of the airport site previously discharged to the Sluice River.

The APEC 5 area is within drainage sub-catchment 4 which is drained by P4 filter drain. Historic surface drains within the site were filled in with brown boulder clay, capped with topsoil, seeded and are now redundant.

Post construction the P4 filter drain now drains the western confines of the airport, and along with other drainage networks within the central and eastern confines of the site, discharges drainage flows to the Sluice River.

The surface drains which run parallel to the R108 on the northern boundary of the airport discharge flow:

- In a westerly direction starting at the drain adjacent to the Keelings Farm shop to the Ward catchment.
- In an easterly direction starting at the drain adjacent to Keelings Farm shop to both the Ward and Sluice catchments. Previously outfalls from these road drains received surface water runoff from historic surface drains within the airport confines prior the north runway construction. Post construction all surface water runoff within the northern runway confines was directed to outfalls via new filter drains. Old historic drain outfalls were filled with brown boulder clay.

Surface water monitoring within the road drain over the period February 2020 and July 2021 at locations SWML 1, SWML 2, SWML 3, SWML4, SWML 7(A), SWML 7(B), P2, P3, P4, P7, P8, R1 and R2 showed elevated PFOS/PFOA, see Table 4-7 suggesting one or more pathways from APEC 5.



5.1.3.1 Pathways Impacting SWML 1, SWML 2 and SWML 3

Table 4-7 surface water monitoring at SWML 1 through 3 shows evidence of elevated Total PFOS over the period February 2020 and July 2021 as follows:

- SWML 1 2.7 ng/l (SWML1 only monitored once).
- SWML 2 17.5 ng/l (No decrease in concentrations since February 2020).
- SWML 3 34.2 ng/l (No decrease in concentrations since February 2020).

Surface water quality at these locations may be impacted by:

- Surface water pathways.
- Shallow groundwater pathways.

Surface water pathways prior to development discharged surface waters via open drains into open channels either side of the R108 road, see Figures 2-1, 3-4 and 5-1. The historic surface water drain outfalls were sealed construction and replaced with dedicated surface water outfalls to accommodate airport green area drainage from P7 (SWML1), P3 (SWML2), P8 (SWML), see Figure 4-1 for locations.

Shallow groundwater pathways may allow PFOS/PFOA contaminated groundwater:

- To enter watercourses at locations north of the APEC 5 site, see Figure 5-1, open channels parallel to the R108 via preferential pathways. It is possible that connectivity between shallow groundwater and the road drain surface water channels may occur via historic permeable fills (road formation and insitu services) within and adjacent to the road easement.
- To enter the east west fault which may be a conduit that allows contaminated groundwater from APEC 5 to migrate into permeable formations within the road easement and thence into the surface drains. (Whilst ground elevation in the APEC 5 area is circa 1-2 m higher than the western confines of the Airport there is currently insufficient groundwater monitoring data adjacent to the fault to inform what impact the fault may or may not have on PFOS contamination of adjacent surface and or ground waters.)

FT does not believe sufficient information exists at present to inform a narrative of PFAS compounds other than PFOS and PFOA. FT advises that it may be appropriate to evaluate movement of other PFAS compounds following receipt of all results post construction at the end of the proposed 24 month post construction monitoring program.

5.1.3.2 Pathways Impacting SWML 4 Adjacent to the P4 Filter Drain Outfall

Refer to: Appendix 1 for aerial photograph of location and Appendix 2 Drawing Green Area Drainage Layout Sheet 05 of 14

Table 4-7 surface water monitoring at SWML 4 shows evidence of elevated Total PFOS (Average 20.7 ng/l) over the period February 2020 and July 2021.



SWML 4 monitoring location downstream of the road and the road ditch outfall while the P4 outfall is upstream of the bridge.

Surface water quality at SWML 4 may be impacted by shallow PFOS/PFOA contaminated ground water flows:

- Entering watercourses at locations north of the APEC 5 site. It is possible that there is connectivity between shallow groundwater, the road drain and surface drainage channels and pathways may exist via historic permeable fills (road formation and insitu services) within and adjacent to the road easement, and or
- Airport green area drainage entering the P4 drain including adjacent to the APEC 5 site and discharging into the Sluice River via the P4 outfall.

5.1.3.3 Pathways Impacting SWML 7(A) and SWML 7(B)

Refer to: Appendix 1 for aerial photograph of location and Appendix 2 Drawing Green Area Drainage Layout Sheets 02 and 03 of 14.

Table 4-7 surface water monitoring at SWML 7(A) and 7(B) show evidence of elevated Total PFOS over the period February 2020 and July 2021 as follows:

- SWML 7(A) 6.84 ng/l
- SWML 7(B) 5.01 ng/l (discounting reporting/sampling error in March 2021 lab results).

Google earth mapping suggests the R108 road (and drains) north of the airport on the R108 ha have a high spot adjacent to the Keelings Farm shop. Surface water drain flows east of this location fall in an easterly direction. Surface water flows west of this location appear to flow in a westerly direction.

Contaminated surface waters in road drains north of APEC 5 are therefore unlikely to influence surface water quality at locations SWML 7(A) and SWML 7(B).

Surface water quality at SWML 7(A) and SWML 7(B) may therefore be impacted by:

- The east west fault or other groundwater flows providing a conduit that allows contaminated groundwater to migrate westwards.
- An alternate source (s) of PFOS/PFOA contamination if the east west fault is not the pathway.
- Airport green area drainage P2.

5.1.4 Potential Receptors

The receptors of potential contaminants of concern based on the CSM are presented below:

- The shallow weathered bedrock aquifer located around or beneath the former fire training ground (APEC 5).
- The deep limestone bedrock aquifer.



- The North Runway Development site surface water drainage which discharges to the River Sluice.
- Aquatic life located within the Sluice and Ward Rivers (which flows into the Broad Meadow River).
- Humans located within close proximity to the site.
- Irrigated Keeling production facilities located approximately 1 km north of the site.
- The Malahide Proposed Natural Heritage Areas: Malahide Estuary (Site Code 000205) and the Broadmeadow/Swords Estuary Special Protection Areas (SPA) (site code 004025). Both sites are located approximately 6 km north east of the project site.

5.2 Findings from the APEC 5 Risk Assessment

5.2.1 Evidence of PFOS/PFOA Contamination

The detected concentrations of Total PFOS at the off-site surface water monitoring points SWML 1, 2, 3, 4, 7(A) and 7B sampled between February 2020 and July 2021 exceeded the 0.65 ng/ Annual Average EQS for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015.

5.2.1.1 *PFOS/PFOA Source (s)*

The sources of PFOS/PFOA are believed to be:

- Residual PFOS/PFOA as may be present in soil/rock that were not removed during construction works within the APEC 5 footprint, i.e., those soils and rock outcrops below sub-formation elevations.
- PFOS and PFOA contaminated groundwaters.

There is no evidence at present to determine the impact of the east west fault on migration. If this fault or ground water flow direction is not responsible for conveying PFOS/PFOA compounds from APEC 5 towards SWMLs 7A and 7B then consideration must be given to an alternate contaminant source being present on site.

As advised in 5.1.1, residual concentrations from other PFOS and PFOA source(s) east of APEC 5 as evidenced by monitoring results showing elevated PFAS concentrations in SWML5(A B). These are not assessed in this risk assessment because: they are removed from the APEC 5 contaminant source; and the P5 drainage network is isolated from the P4 drainage network.

5.2.1.2 *Pathways*

The results of the surface water sampling indicate that PFOS/PFOA contaminated waters continue to migrate off-site to impact off-site surface water receptors (River Sluice and River Ward) and Section 5.1.3.1 of this report shows elevated Total PFOS to be present at SWML1, SWML2 and SWML3.

The migration pathways are however not clearly understood. Whilst monitoring clearly shows that surface water drains external to the site contain and convey PFAS compounds, the pathways between the APEC 5 source and the surface waters are not clearly understood.



Pathways may be one or more of the following:

- The P4 surface drainage network linking the APEC 5 source to surface waters.
- Badly sealed historic surface drains linking the APEC 5 source to surface waters.
- Permeable connections (ducts services, road formations or similar) between shallow groundwater on the northern boundary of the airport and surface waters north of the runway development.
- Faults linking shallow groundwater to surface drains outfalling to P7 and P3.
- Adjacent drainage systems intercepting shallow groundwaters which may be impacted by APEC 5 or other contaminant sources outfalling to P7, P3, P8, P4 or P5.

Sampling previously undertaken by FT at off-site sampling locations between August through to October 2018 showed a general decrease in PFOS concentrations: during the wetter months, and with increasing distance from the contaminant source identified in the shallow groundwater beneath APEC 5. This suggests that PFOA/PFOS compounds may be reduced by dilution.

Surface water monitoring results show that SWML 5(A) and SWML 5(B) PFAS/PFOA concentrations exceed observations at SWML4 suggesting another PFAS source removed from APEC 5 may be present.

5.2.1.3 Adequacy of Monitoring

The risk assessment highlighted that there is insufficient post construction monitoring data to carry out a robust risk assessment.

Whilst monitoring data at locations downstream/down gradient of APEC 5 clearly shows evidence of migration, available groundwater and surface water monitoring data is unable to provide sufficient information to facilitate an informed assessment of pathways.

5.2.2 Risk to potential down gradient groundwater abstractions off-site is *Inconclusive*.

Based on the findings of this risk assessment using available data, the on-going risks posed to the identified receptors are outlined in the following sections.

Groundwater sampling (2018) suggests a contaminant plume is present beneath APEC 5 and that continued lateral and vertical migration of contaminants may occur through bedrock to the underlying groundwater table.

Monitoring (2019) results from BH09 confirmed that PFAS contaminants within shallow groundwater have not migrated laterally within shallow groundwater to the extent where BH09 was impacted. However, recorded water levels (Table 3-6) and Figure 3-3 indicate that BH09 may be separated from the APEC 5 site by faults and BH09 may not be downgradient of BH08.

Based on available data, the groundwater flow direction and extent of the plume cannot be confirmed. As such, the risk to potential users of shallow bedrock groundwater off-site is **Inconclusive**. Post construction monitoring of groundwater pathways in relevant locations is required.



5.2.3 Risk to on and off-site surface waters and aquatic life will be *Medium*.

Based on the presence of PFOS contaminant levels above the 0.65 ng/l Annual Average EQS for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015, there is:

- A possible risk posed to surface waters and aquatic life. The results of the surface water sampling indicate that while concentrations of Total PFOS at onsite sampling locations are above the Average EQS for Inland Surface Waters, concentrations generally decrease with increasing distance from the contaminant source. The Environment Agency (EA) published the report *Perfluorooctane sulfonate (PFOS) and related substances: sources, pathways and environmental data*¹⁵ in October 2019. The report mentions that the annual average EQS has been calculated from the biota EQS, but states that analysis of EA water and biota data from the same freshwater locations over several years suggests that using the water EQS to assess exceedance of the biota EQS may over predict the likely failure of the biota standard. Analysis of measured concentrations of PFOS in freshwater and fish in the same locations suggest a correlation.

The EA used this correlation to estimate the level in water above which they can infer failure of the biota EQS with reasonable confidence, deriving an 'alternative water threshold' of 3 ng/l for PFOS. Although concentrations in surface water may still exceed this alternative threshold, the exceedance is less. On this basis, it is assumed the risk to aquatic life is medium to low.

- A possible on-going risk is posed to Human Health during and post construction activities based on horizontal migration away from the source (via groundwater beneath the site) and potential human ingestion and dermal contact with groundwater or surface water during or post construction activities.

Based on available data the risk to on and off site surface waters and aquatic life is considered to be medium.

5.2.4 Risk to on and off-site surface waters Keelings Sluice Catchment will be *Low*.

Available information advises Keelings use rainwater harvested on site from glass houses and stored in ponds to clean glass houses and to supplement the potable water supply used on site for irrigation¹⁶.

GSI has no records of boreholes being present on site to supplement irrigation.

Available information also suggests that the Barberstown 08 watercourse/drain, see Figure 2-1, is used as a drain and not as a source of water.

Whilst there is no monitoring data available in the Barberstown 08 drain and even though there may be pathways (fault or other) linking APEC5 to lands below the Keelings farm the risk of PFOS/PFOA contaminating irrigation water on adjacent Keeling's farm and associated greenhouses located approximately 1 km north-west of the North Runway development is nevertheless considered to be low because of the uses of rainfall runoff from glass houses to support irrigation.

¹⁵https://consult.environment-agency.gov.uk/environment-and-business/challenges-and-choices/user_uploads/perfluorooctane-sulfonate-and-related-substances-pressure-rbmp-2021.pdf

¹⁶ <https://www.measurit.com/tidflex-case-studies/500mm-checkmate-valve-on-keelings-fruit-farm>



6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Overview

A Materials Management Options Assessment Design Report for the Management for PFOS and PFOA Impacted Soils dated March 2020 prepared by FT concluded that PFAS source contaminants within the former fire training ground at Dublin Airport referred to as APEC 5 be excavated and used as general fill to reinstate the pre-cast concrete R2 and P5 attenuation tanks within the site boundary.

Works were initiated to facilitate source removal of PFAS materials from the APEC 5 site. Figure 6-1 shows the approximate location of the APEC 5 footprint in relation to the runway and the P4 surface water filter drain.

The runway related works comprise:

- A concrete runway which is impermeable to rainfall above the northern half of the APEC 5 footprint.
- A grassed area south of the runway which comprises a grassed area founded on topsoil, and formation materials (granular fill, subsoil and or cement stabilised subsoil).
- Sub-formation materials (bedrock and soil) that may contain residual PFAS materials
- The P4 surface water filter drain which comprises a slotted HDPE drainage pipe surrounded with granular fill designed to intercept surface water runoff and convey it to the P4 outfall which discharges via surface drains north of the runway footprint into the Sluice River.

6.2 Groundwater

Previous 2018 studies showed groundwater contamination was present in shallow groundwater below and immediately adjacent to the APEC 5 site. Following the construction of the runway and stabilisation area, residual contamination remains and is present below the sub-formation levels in soil and bedrock within the APEC 5 site boundary.

Lateral and vertical migration of PFOS/PFOA contaminants via groundwater will continue albeit that the paved runway will reduce that amount of rainfall inputs that will recharge groundwater.

Groundwater beneath the site may also be discharging vertically and laterally into the P4 surface water drainage network.

Monitoring (2019) results from BH09 confirm that that PFAS contaminants within shallow groundwater have not migrated laterally within shallow groundwater to the extent where BH09 has been impacted. However, recorded water levels (Table 3-6 and Figure 3-3) indicate that BH09 may be separated from the APEC 5 site by a north-south fault and may not be downgradient of BH08.

There are 2 No. faults in close proximity to APEC 5, see Figure 2-1. One fault runs east west and the other fault runs north south. These faults may influence ground water elevations and flow directions. There are insufficient groundwater monitoring boreholes adjacent to the APEC 5 footprint and either side of the faults such that it is not possible to confirm groundwater flow direction and or elevation below and adjacent to the APEC 5 site.



On the basis that the groundwater flow direction and elevations below and adjacent to the APEC 5 site have yet to be confirmed the risk to potential users of shallow bedrock groundwater off-site is **Inconclusive**.

It is not considered necessary nor practicable to target groundwater contaminants beneath the site. However, given the limited number of groundwater monitoring boreholes and the disturbances associated with construction activities, additional wells are recommended in order to determine the extent of the PFAS plume and to confirm, if possible, the groundwater flow direction(s).

The locations of the proposed groundwater monitoring wells are presented in Figure 2-1 and details are summarised in Table 6-1, along with a description of the location and rationale for selection.



Table 6-1: Recommended Groundwater Monitoring Locations

Hole ID	Type of Hole	Location	X (ITM)	Y (ITM)	Purpose of Hole	Anticipated Geology	Depth of Hole (m)	Sampling & In-situ Testing	Installations
GW11	Rotary Core Borehole.	Within APEC5 footprint.	714562	744317	Evaluate residual source within original source area.	Based on previous SI: Clay to c. 2-2.5m BGL, Limestone bedrock to >10m BGL.	10	Falling head test, screened in bedrock. Well developed by airlifting.	Yes, screen from top of Limestone bedrock to 10m BGL, seal above bedrock in borehole to prevent water ingress.
GW12	Rotary Core Borehole.	East of APEC5, adjacent to P4 filter drain (south) downgradient from APEC5.	714718	744240	Evaluate potential extent of any plume to east and improve understanding of groundwater flow direction; potential worse case location adjacent to filter drain.	Based on GSI Mapping: Limestone Till between 0-3m BGL, overlying limestone bedrock.	10	Falling head test, screened in bedrock. Well developed by airlifting.	Yes, screen from top of Limestone bedrock to 10m BGL, seal above bedrock in borehole to prevent water ingress.
GW13	Rotary Core Borehole.	South of APEC 5.	714494	744229	Evaluate potential extent of any plume to south and improve understanding of groundwater flow direction.	Based on GSI Mapping: Limestone Till between 0-3m BGL, overlying limestone bedrock.	10	Falling head test, screened in bedrock. Well developed by airlifting.	Yes, screen from top of Limestone bedrock to 10m BGL, seal above bedrock in borehole to prevent water ingress.
GW14	Rotary Core Borehole.	West of APEC5.	714461	744307	Evaluate potential extent of any plume to west and improve understanding of groundwater flow direction.	Based on GSI Mapping: Limestone Till between 0-3m BGL, overlying limestone bedrock.	10	Falling head test, screened in bedrock. Well developed by airlifting.	Yes, screen from top of Limestone bedrock to 10m BGL, seal above bedrock in borehole to prevent water ingress.
GW15	Rotary Core Borehole.	North of APEC5, other side of runway.	714558	744420	Evaluate potential extent of plume in direction currently interpreted to be downgradient from APEC5 site; in similar area to previous BH08 where downgradient plume was detected.	Based on previous SI: Clay to c. 1.3m BGL, weathered bedrock from c 1.3m BGL to 2.0m BGL, Limestone bedrock to >10m BGL.	10	Falling head test, screened in bedrock. Well developed by airlifting.	Yes, screen from top of Limestone bedrock to 10m BGL, seal above bedrock in borehole to prevent water ingress.
GW16	Rotary Core Borehole.	North of APEC5, within line of former surface drain, just south of P4 filter drain.	714612	744481	Evaluate potential extent of any plume to north and potential worse case location adjacent to old surface water drain and filter drain.	Based on GSI Mapping: Limestone Till between 3-5m BGL, overlying limestone bedrock.	10	Falling head test, screened in bedrock. Well developed by airlifting.	Yes, screen from top of Limestone bedrock to 10m BGL, seal above bedrock in borehole to prevent water ingress.



Hole ID	Type of Hole	Location	X (ITM)	Y (ITM)	Purpose of Hole	Anticipated Geology	Depth of Hole (m)	Sampling & In-situ Testing	Installations
GW17	Rotary Core Borehole.	North of APEC5, within area of mapped N-S fault.	714552	744546	Evaluate potential extent of any plume to north and potential worse case location in fault area.	Based on GSI Mapping: Limestone Till between 0-3m BGL, overlying limestone bedrock.	10	Falling head test, screened in bedrock. Well developed by airlifting.	Yes, screen from top of Limestone bedrock to 10m BGL, seal above bedrock in borehole to prevent water ingress.
GW18	Rotary Core Borehole.	North-East of APEC5, on road verge / site boundary.	714510	744581	Evaluate potential extent of any plume at site boundary to north-east (east of fault).	Based on GSI Mapping: Limestone Till between 0-3m BGL, overlying limestone bedrock.	10	Falling head test, screened in bedrock. Well developed by airlifting.	Yes, screen from top of Limestone bedrock to 10m BGL, seal above bedrock in borehole to prevent water ingress.
GW19	Rotary Core Borehole.	North-West of APEC5, on road verge / site boundary	714749	744555	Evaluate potential extent of any plume at site boundary to north-west (west of fault).	Based on GSI Mapping: Limestone Till between 3-5m BGL, overlying limestone bedrock.	10	Falling head test, screened in bedrock. Well developed by airlifting.	Yes, screen from top of Limestone bedrock to 10m BGL, seal above bedrock in borehole to prevent water ingress.



6.3 Surface Water

Refer to Figure 2-1 and Table 4-7.

Table 4-7 shows surface water monitoring results for Total PFOS at locations SWML 1, 2, 3, 4, 5(A), 5(B), 7(A), 7(B), P2, P3, P4, P7, P8, R1 and R2 exceed 0.65 ng/l (the Annual Average EQS for Inland Surface Waters as set by S.I. No. 386 of 2015). Total PFOS and PFOA concentrations are also noticeably higher and varied at locations SWML 3 and 4.

Surface water results for PFOS and PFOA monitoring do not exceed the 36,000 ng/l MAC for Inland Surface Waters for Total PFOS set by S.I. No. 386 of 2015.

There is also evidence of elevated concentrations of other PFAS substances. Whilst these other substances do not have published guidelines values, their presence nevertheless shows evidence of environmental pollution.

PFOS/PFOA contamination at SWML 5(A&B) is believed to be from another source isolated from and east of the P4 drainage network. Contamination as may result from this source is not discussed in this report.

It is possible that PFOS/PFOA contamination at SWML 7(A) and 7(B) is influenced by the east west fault. If not, another source isolated from and west of the P4 drainage network may need to be considered. Contamination as may result from another source(s) is not discussed in this report.

6.3.1 Proposed Monitoring SWML 8

There is evidence of contamination in surface waters at monitoring locations SWML 2 and 3 to the north of the R108 road drain on the northern boundary of the north runway. This drain also discharges into both the Sluice River and the Ward River.

Adjacent to and north of the R108 road drain and SWML 2 and 3, the Barberstown 08 watercourse discharges to the Ward River.

There is insufficient data to determine if APEC 5 PFAS contaminants can influence water quality in the Barberstown 08 watercourse.

Pathways may be present at follows:

- Shallow groundwater connecting to surface water via the north south fault or other.
- Connectivity between the east west R108 road drain and the north south field drains.

There is limited surface water monitoring data available in the Barberstown 08 watercourse, accordingly it is recommended that an additional surface water monitoring location be installed at proposed SWML 8 location, see Figure 2-1. This may inform possible pathways, be they ground or surface water related.



6.3.2 Proposed Additional Monitoring P4 Filter Drain

Whilst available evidence suggests elevated Total PFOS and PFOA concentrations may arise from groundwater flows it is unclear to what extent, if any, the constructed P4 surface water filter drain is contributing to contamination.

The P4 surface water drain adjacent to the APEC 5 footprint was excavated into rock. To determine whether the adjacent P4 surface drain is being impacted by residual PFOS/PFOA contaminants as may be present in remaining overburden or within in bedrock, it is proposed to carry out monitoring within the P4 drainage network upstream and downstream of the APEC 5 site at manhole locations P4-14 and P4-20, see Figure 6-1.

6.4 Monitoring Program Recommendations

This report recommends quarterly monitoring of ground and surface waters be continued during post construction and that the density of monitoring locations be increased. It is also recommended that monitoring events continue to be referenced against rainfall events and safety permitting sampling should also record and or make estimates of surface water flows where possible.

6.4.1 Proposed Groundwater Sampling

Refer to Figure 2-1 and Table 6-1.

Groundwater elevation, sampling and analysis for PFAS contaminants to be conducted at GW11 through to GW19 for Sum of PFAS, PFOS and PFOA.

It is recommended that following installation of new boreholes three rounds of fortnightly monitoring be carried out to gain an initial dataset, thereafter subject to follow on reviews, frequency of monitoring to be reviewed. For boreholes removed from airside locations intervals not to exceed 3 months.

6.4.2 Proposed Surface Water Sampling

Refer to Figure 2-1 and Table 6-2 below.

It is recommended that the current RBFCC monitoring of quarterly monitoring of surface water sampling and analysis for Sum of PFAS, PFOS and PFOA be continued at all monitoring locations.

It is recommended that three rounds of fortnightly monitoring be carried out at new monitoring locations SWML8 and P4 outfall to gain an initial dataset. Monitoring thereafter at new and existing monitoring locations listed in Table 6-2 to be conducted at quarterly intervals.

Table 6-2 below also recommends new monitoring stations at:

- Proposed monitoring location SWML 8 to assess whether there is PFAS contamination in the surface drains. If contamination is present it may show either a connectivity between the road drain on the R108 and the Barberstown watercourse, or a link between ground and surface waters.



- Proposed monitoring location within the P4 green surface drainage system upstream and downstream of the APEC 5 area to assess whether the P4 drainage network is being contaminated by the groundwater flows from the APEC 5 into the P4 surface drain.

When sampling at structure outfalls into a watercourse sampling to be taken where possible from within the outfall structure (not in the downstream channel).

When sampling in watercourses where outfalls are present, sampling where possible to be conducted upstream of outfall in order to differentiate if possible drain outflow quality with respect to receiving drain quality.

Table 6-2: Proposed Surface Water Monitoring Locations

Surface Water Monitoring Location	Coordinates	Description
SWML 1		Decommissioned no monitoring required.
SWML 2	53.4386398, -6.2748493	West - <u>Open channel</u> along R108 downstream of P3 - (River Ward Catchment).
SWML 3	53.438493, -6.271629	West - <u>Open channel</u> along R108 downstream of P8 - (River Ward Catchment).
SWML 4	53.438563, -6.253603	East - <u>Open channel</u> along R108 downstream of P4 & R1 outfalls. Located upstream of SWML 5(A) – (Forest Little Catchment (River Sluice)). Upstream of headwall to facilitate comparison with P4.
SWML 5 (A)	53.438473, -6.250628	East - <u>Open channel</u> along Forrest Road receives SWML 4 influence, R2 culvert charge and airfield hangars surface runoff. Sample to be taken from structure not channel. (Forest Little Catchment (River Sluice)). <u>Not required as part of this risk assessment but required for future studies to assess contamination evident in green area P5 drainage system.</u>
Channel flow upstream of SWML 5(A)		To facilitate differentiation between channel flow and structure flow.
SWML 5 (B)	53.438405, -6.271689	East - <u>Open channel</u> along Forrest Road receives SWML 4 influence, R2 culvert charge and airfield hangars surface runoff (Forest Little Catchment (River Sluice)). <u>Not required as part of this risk assessment but required for future studies to assess contamination evident in green area P5 drainage system.</u>
SWML 6		Decommissioned.
SWML 7(A)	53.436820, -6.293885	West - <u>Open channel</u> traversing the area of the OLS flight path. Kilreesk Road. Located downstream of P2. (River Ward Catchment).



Surface Water Monitoring Location	Coordinates	Description
SWML 7(B)	53.438724, -6.296626	West - <u>Open channel</u> along the R122 traversing agricultural lands upstream of SWML 7(A) (River Ward Catchment).
P2	53.437062, -6.291438	West -P2 <u>tank manhole</u> along Peri Road on SW corner.
P3	53.438635, -6.274964	West - P3 <u>tank manhole</u> on peri road proximal (west) of substation.
P4 Headwall	53.438580, -6.254686	East - Receiving charge from P graded strip and peri roads areas along the West Runway. Upstream of SWML 4. In <u>structure headwall</u> where possible.
P7	53.439238, -6.283138	West - P7 <u>tank manhole</u> along perimeter road opposite Keelings
P8	53.438389, -6.271715	West - P8 <u>tank manhole</u> on perimeter road beside R108 and east of substation
R1 Headwall	53.438343, -6.254375	East - <u>Culvert outfall</u> receiving charge from R1 Attenuation tank
R2 Headwall	53.438548, -6.254639	East - <u>Culvert outfall</u> receiving charge from P5 tank and R2 attenuation tank. Culvert headwall located along the R108 behind Kavanagh's residence
Proposed - SWML8	53.444478, -6.284120	North - <u>Open channel</u> adjacent to entrance to Oakland International Food Central industrial development to establish if surface contamination
Proposed – Manhole chambers P4-15 and P4 20	See Figure 6-1 replicated from Appendix 10 Drawing APEC 5 Location of P4 filter drain.	South- New surface drainage <u>manholes</u> in P4 green drainage system to facilitate water quality assessment upstream and downstream of APEC 5 area.

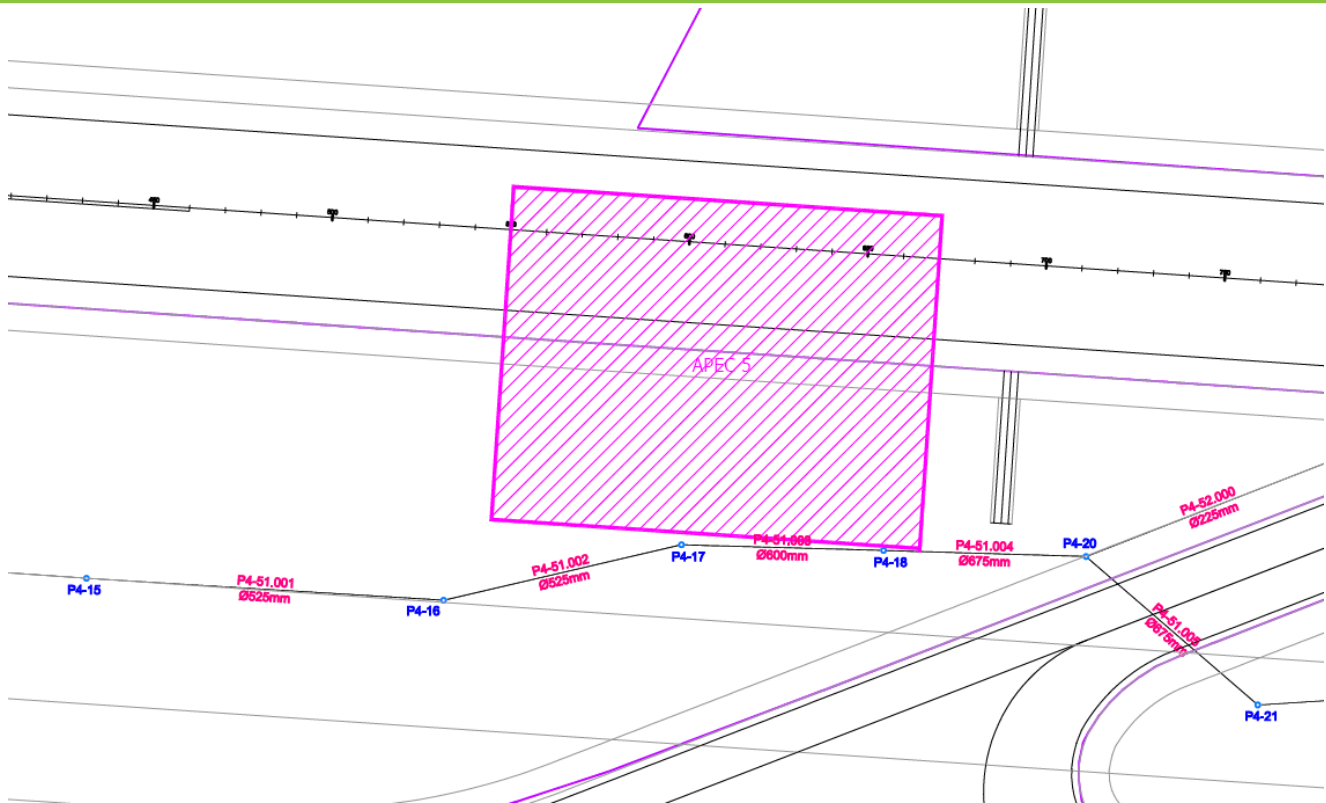


Figure 6-1: APEC 5 Location Green Surface Water Drainage System P4

6.4.3 Proposed Monitoring Frequency

Details of proposed surface and ground water monitoring locations during construction were initially presented in FT report 2020 Dublin Airport North Runway Development Material Management Report for the Management of PFOS/PFOA impacted Soils Rev 5 dated November 2020 and replicated Appendix 1 Drawing P2214-0700-0002 Rev C. Following receipt of more recent monitoring results, this report recommends post completion of the works that sampling be continued 12 months post construction defects period as follows:

- Monitoring at new surface water and borehole locations to comprise initial fortnightly monitoring for 3 rounds installations to gain an initial data set.
- Groundwater sampling and analysis for Sum of PFAS, PFOS and PFOA on a quarterly basis as noted in Table 6-1 and described in Section 6.1.
- Surface water sampling and analysis (and flow rate monitoring or estimates safety permitting if possible) for Sum of PFAS, PFOS and PFOA on a quarterly basis from structure outfalls as shown on Figures 2-1, Table 6-2 and described in Section 6.2.
- Surface water sampling and analysis (and flow rate monitoring or estimates safety permitting if possible) for Sum of PFAS, PFOS and PFOA and flow rates on a quarterly basis from in Green Area P4 Drainage system as shown in Figure 6-1 and described in Table 6-2.

At a minimum there will be a requirement for 24 months of testing post construction for both surface and ground waters.



At the end of the 12-month construction defects period, an assessment will be required to review available results with a view to determining the long-term monitoring frequencies at selected locations.

Future reviews will need to examine both absolute and relative concentrations with respect to location, proximity to piped outfalls and base flows all of which may impact PFAS concentrations.

The objective of the on-going and proposed long term monitoring programme will be to identify:

- Groundwater flow direction in the vicinity of APEC 5.
- The impact, if any of groundwater contamination from APEC 5 on adjacent surface waters removed from and adjacent to the airport site.
- Any changes in contaminant concentrations in ground and surface waters and relationship if any to rainfall.
- Impact if any of APEC 5 connectivity to P4 surface drainage system.

Surface and ground water samples should be tested for the contaminants of concern (Sum of PFAS, PFOS and PFOA compounds) by a UKAS accredited laboratory. In addition, recent rainfall, groundwater elevations and flow measurements where possible, should be recorded during the monitoring works to facilitate a more comprehensive understanding of groundwater flows.

6.5 Recommendation For Future Works

6.5.1 What is Known

Historically firefighting training operations at the APEC 5 site caused the underlying soil, surface and ground waters to be contaminated with PFAS and PFOA compounds.

The firefighting training operation has since ceased so there will be no new PFAS/PFOA contaminants introduced to the site.

Construction of the northern runway:

- Removed contaminated PFAS materials down to sub-formation elevations for respective construction elements.
- Provided an impermeable cap over the northern section of the APEC 5 footprint reducing rainfall inputs and recharge to the underlying shallow groundwater.

Residual source contamination may remain:

- In contaminated shallow groundwater, and
- below sub-formations underlying runway related works.



Monitoring has and continues to show sensitive receptors removed from APEC 5 have been impacted by PFAS contamination in:

- Surface waters to the north and west of APEC 5.
- Shallow groundwater formations below and adjacent to APEC 5.

Possible pathways within the airports footprint may include but may not be limited to:

- Shallow groundwater flow direction possible impacted geological faults.
- Permeable formations linking shallow groundwater to surface drains external to the airport.
- Constructed P4 surface water filter drains.

6.5.2 Knowledge Shortfalls

The proposed monitoring regime has been structured to inform knowledge pathway related shorts falls associated with ground and surface waters

6.5.2.1 *Groundwater Related*

The groundwater flow direction in the vicinity of APEC 5 is unknown. Previous studies assumed groundwater flow direction was south to north. No evidence of contamination was shown to be present in BH09. BH09 was assumed to be downgradient of BH08, albeit that there is currently insufficient evidence to confirm or otherwise challenge this assumption. Based on a worst-case scenario, it has been assumed that the plume extends north of BH08. There is also evidence of surface water contamination in surface drains north of the APEC 5 site, which may be impacted by the north south fault and there is also evidence of surface water contamination west of the APEC 5 site, which may be influenced by the east west fault.

The intent of a review of groundwater elevation and quality in new boreholes over a period of 24 months is to provide additional information that may advise whether:

- The east-west fault may be responsible for PFAS compounds observed in surface water monitoring locations SWML 7(A) and 7(B).
- The north- south fault and/or the east west fault may be responsible for PFAS compounds observed in surface water monitoring locations SWML 1 through SWML 3.
- Monitoring of green surface water filter drain manholes P4-15 and P4-20, see Figure 6-1 is responsible for recharging groundwater below the APEC 5 site.

Because boreholes have not been installed in private lands north and west of the APEC 5, the information is unlikely to inform the extent or other of groundwater contamination as may be present external to the site.



6.5.2.2 *Surface Water Related*

Surface water monitoring will continue at existing monitoring locations. In addition to which monitoring location changes will be as follows:

- When a stream monitoring location is adjacent to an outfall:
 - The monitoring location in the outfall must be within the outfall structure, and
 - the monitoring location in the stream must be upstream of the structure outfall.
- Monitoring at proposed outfall SWML 8 is designed to see if PFAS surface water contamination occurs north of existing drains which run parallel to the R108. If present it may indicate connectivity between surface drains out-falling to both the Sluice River and the Ward River, or it may indicate that PFAS contaminated groundwater is impacting surface waters north of the R108.
- Monitoring of green surface water filter drain manholes P4-15 and P4-20, see Figure 6-1, to inform if residual APEC 5 materials are impacting surface water drains

6.5.3 Future Works

Following continued monitoring of ground and surface water an analysis of source pathway receptors will need to be conducted with a view to better informing the impacts of groundwater on surface water receptors.

This review will inform or otherwise the need to carry out further investigations and/or remedial works to protect humans, aquatic life or other biota.



7. REFERENCES

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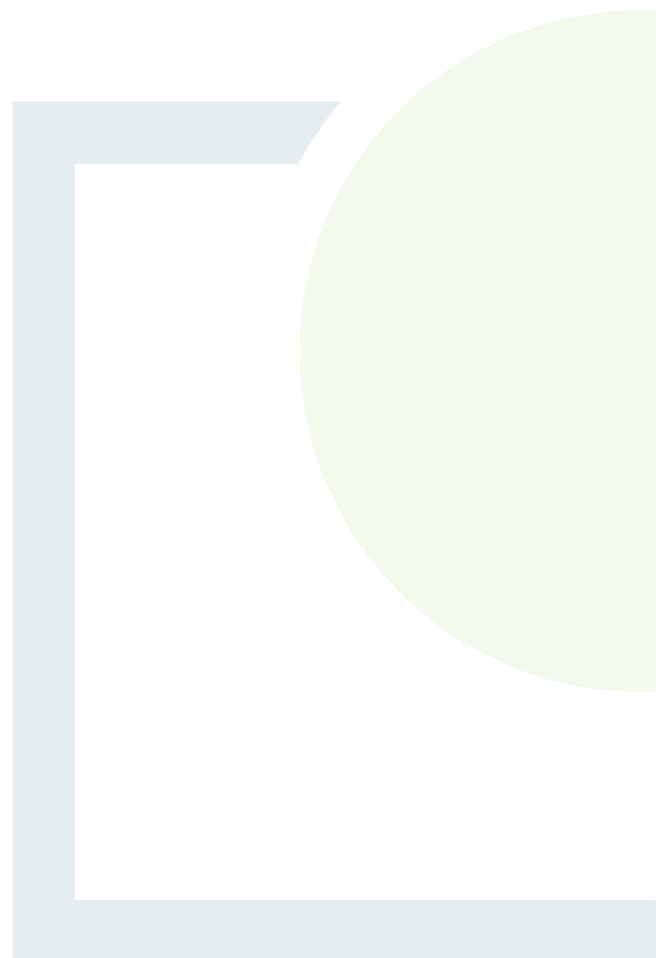


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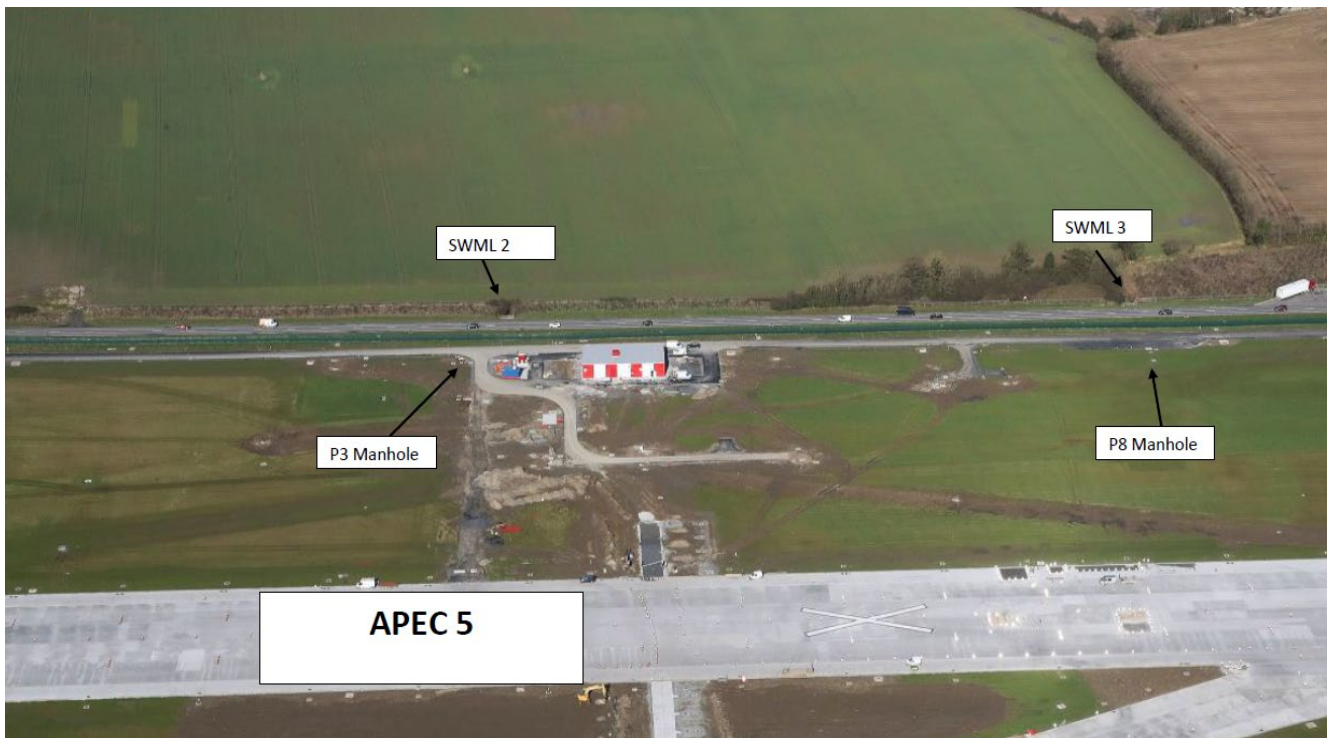
**CONSULTANTS IN ENGINEERING,
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APPENDIX 1

Monitoring Location
Photographs



SWML 2, SML 3 and P3 and P8 Aerial View



P3

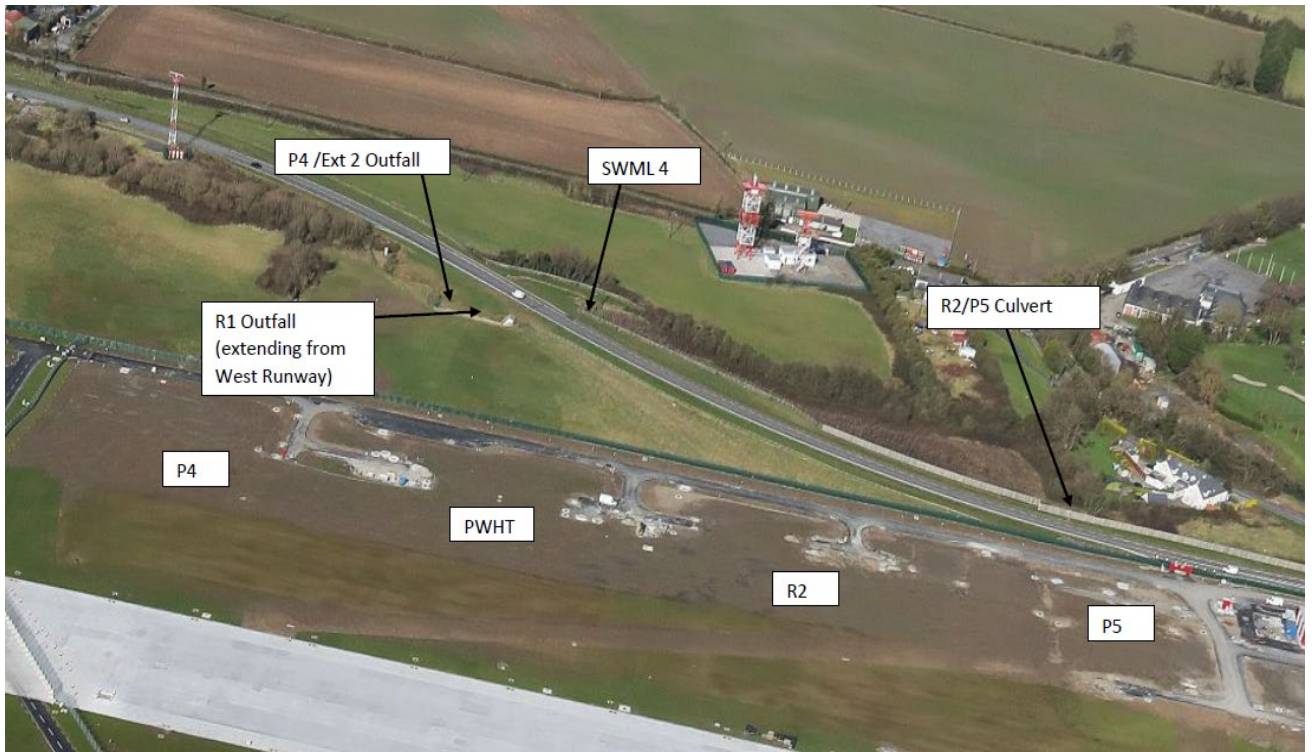
P8

SML2

SML3



SWML 4 and P4 Aerial View



SWML 4 Stream Outfall



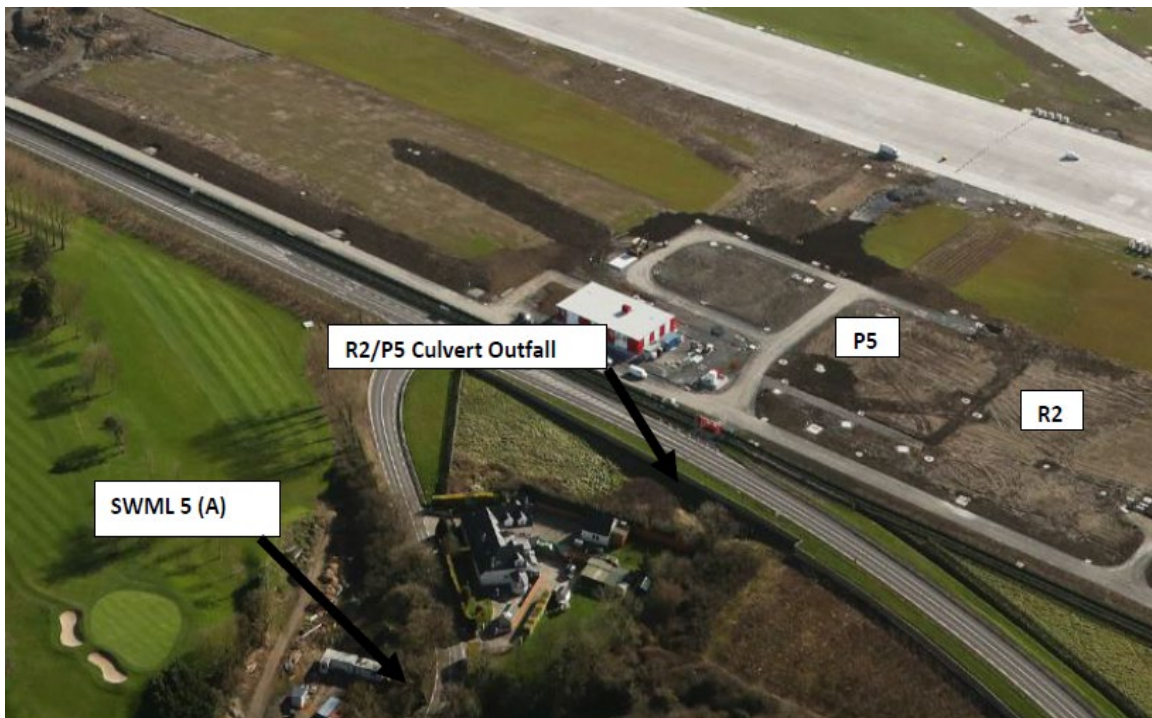
SWML 4 Outfall Headwall



P4 Outfall Headwall



SWML 5A Aerial View



SWML 5A Facing North



SWML 5B Aerial View



SWML 5B Location

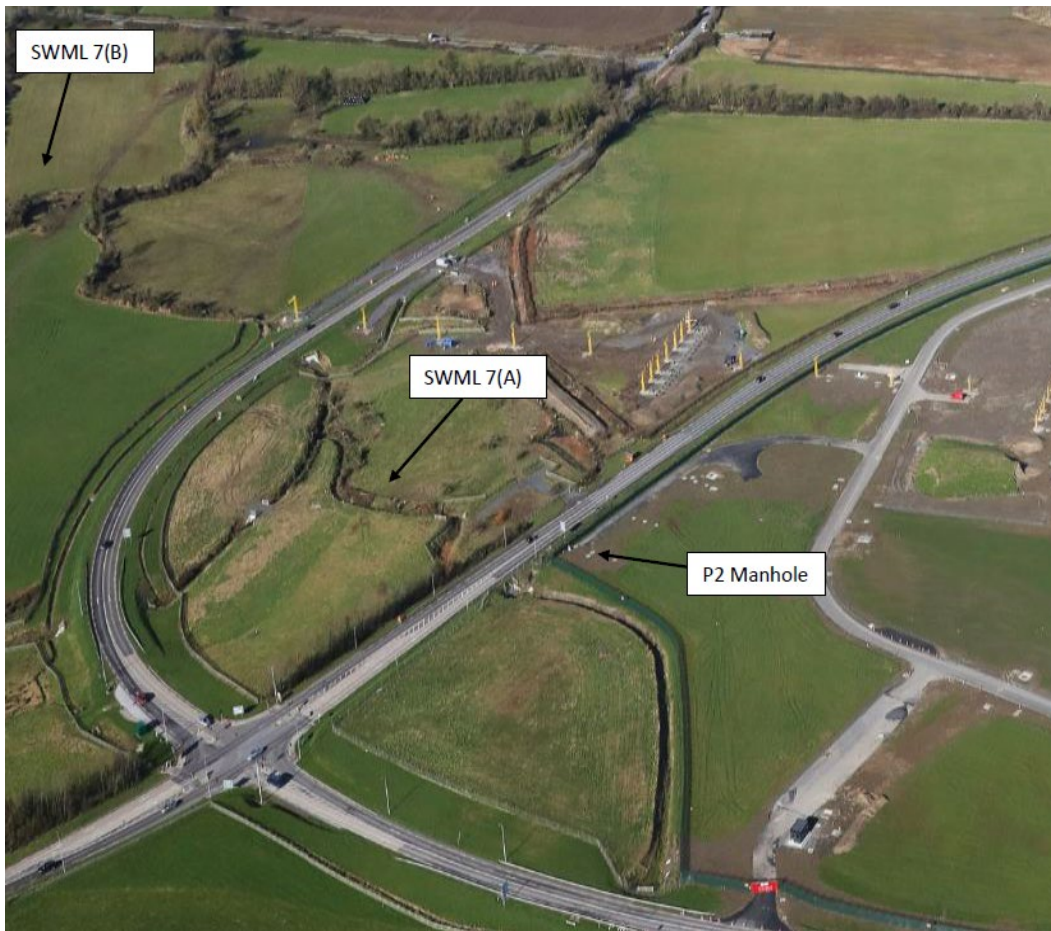


SWML 5B Chamber



SWML 7A, 7B and P2 Locations

SWML 7A, 7b and P2 Aerial View



SWML 7a



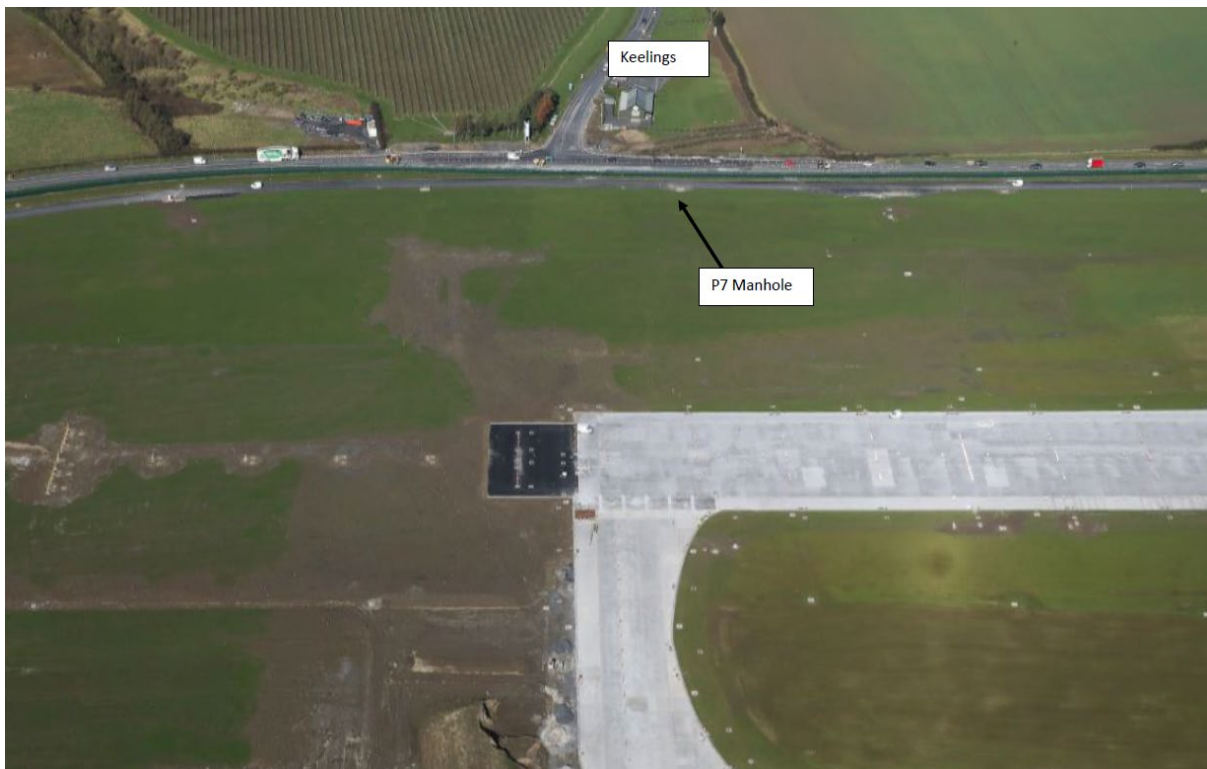
SWML 7b



P2



SWML P7



SWML 8

Monitoring at this location is recommended in this report and as of July 2021, monitoring has not been carried out nor has the exact location been selected. Hence there is no photograph.

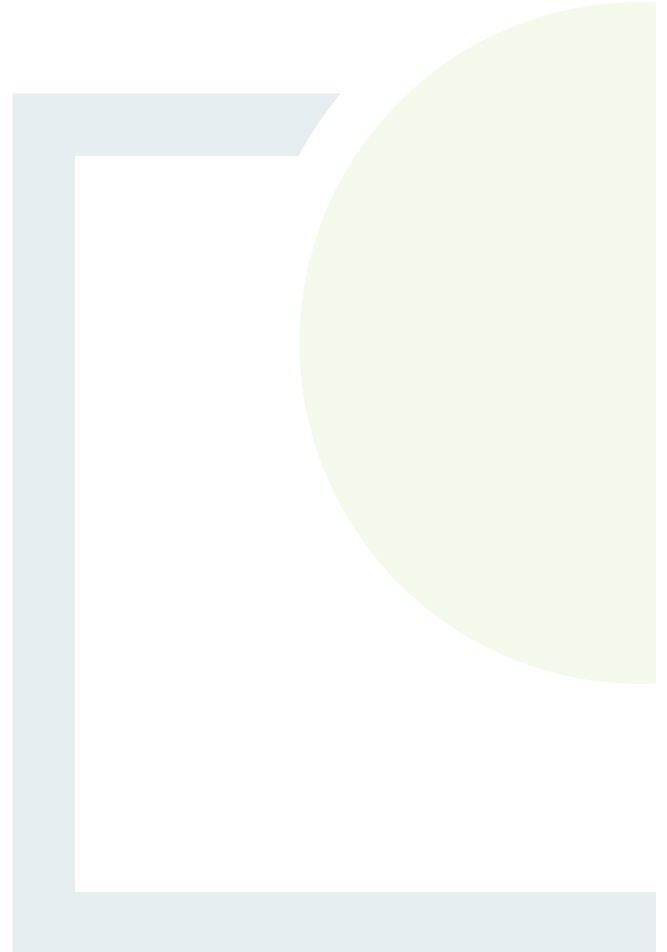


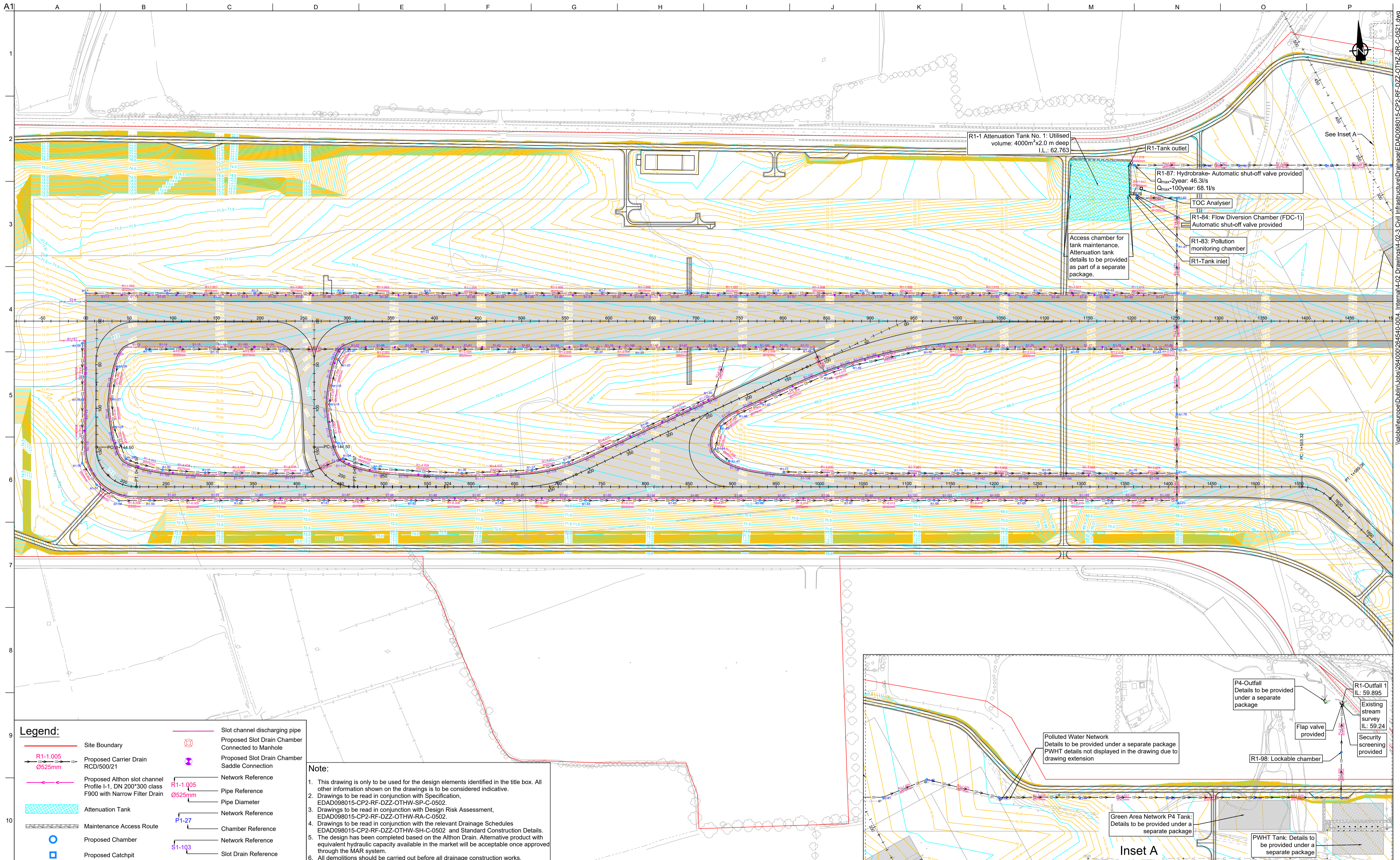
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& PLANNING**

APPENDIX 2

**Green Surface Area Drainage
Drawings**





Contractor

A Joint Venture

Consultant

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- Coordinate System: Irish Grid TM 65

Rev	Date	Description	By	Chkd	Appd	Auth
C02	16/01/20	Issued For Construction	MI	MR	JV	EOD
C01	16/10/19	Issued For Construction	MI	MR	JV	EOD

Client

daa
Head Office
Dublin Airport
County Dublin
Ireland
www.daa.ie

Project Title
Dublin Airport North Runway Construction Package 2

Drawing Title
Paved Area Drainage West Layout

FOR CONSTRUCTION

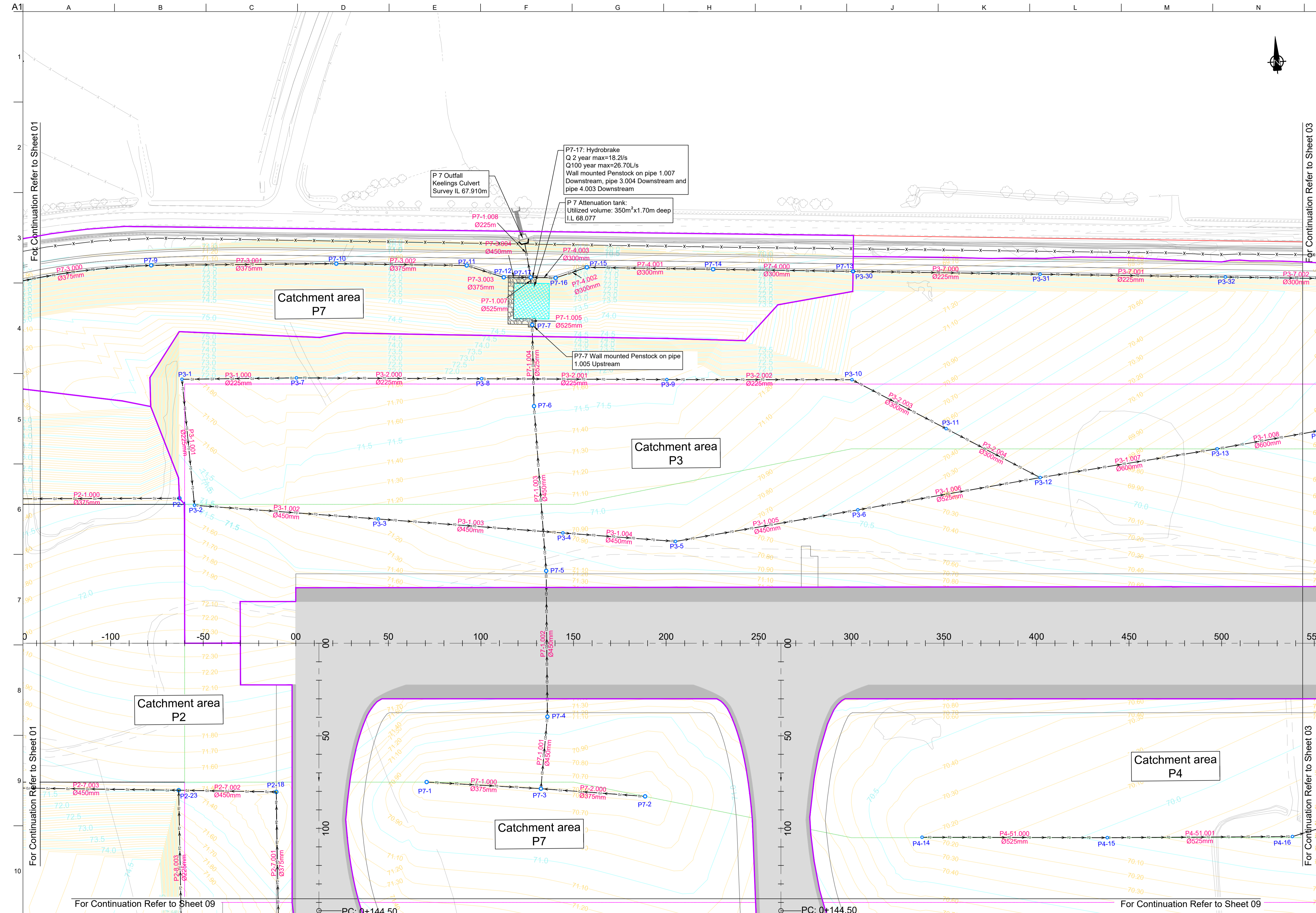
Scale at A1: 1:2000 Job No: 264540-00

Role: Civil Engineer

Sustainability: CR

Rev	By	Chkd	Appd	Auth
C02	MI	MR	JV	EOD
Date	04/04/19	04/04/19	04/04/19	04/04/19

Name: EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0521



- Note:**
- This drawing is only to be used for the design elements identified in the title box. All other information shown on the drawings is to be considered indicative.
 - Drawings to be read in conjunction with Specification EDAD098015-CP2-RF-DZZ-OTHW-SP-C-0503.
 - Drawings to be read in conjunction with the relevant Drainage Schedules and Standard Construction Details.
 - The Green Area catchments not shown in this drawing are in abeyance and will be displayed in future iterations of the design drawing.

Tanks volume and pipe sizes are estimated based on the following runoff coefficients:

- Green areas = 0.3
- Perimeter roads = 1.0

- Legend:**
- Site Boundary
 - Permanent Fence
 - Catchment Boundary
 - 140m Runway Strip Boundary
 - 105m Clear and Graded Boundary
 - Proposed Carrier Drain
 - Proposed Carrier Drain Surrounded by concrete
 - Attenuation Tank
 - Existing Ditch to be regraded according to Schedule
 - Proposed Ditch
 - Proposed Filter Drain
 - Maintenance Access Route
 - Ditch Setting -out point
 - Proposed Chamber
 - Proposed Headwall
 - Network Reference
 - Pipe Reference
 - Pipe Diameter
 - Network Reference
 - Manhole Reference
 - Existing Culvert
 - Existing Watermain
 - Existing Drainage

Key Plan

0551	0552	0553	0554	0555	0556	0557
0558	0559	0560	0561	0562	0563	0564

Contractor

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- Coordinate System: Irish Grid TM 65

Rev	Date	Description	By	Chkd	Appd	Auth
C01	15/10/19	Issue for Construction (Network P2, P3, P4, P7)	AG	MR	JV	EOD

Client

daa
Head Office
Dublin Airport
County Dublin
Ireland
www.daa.ie

Project Title

**Dublin Airport
North Runway
Construction Package 2**

Drawing Title

**Green Areas Drainage
Layout
Sheet 02 of 14**

FOR CONSTRUCTION

Scale at A1: 1:1000

Job No: 264540-00

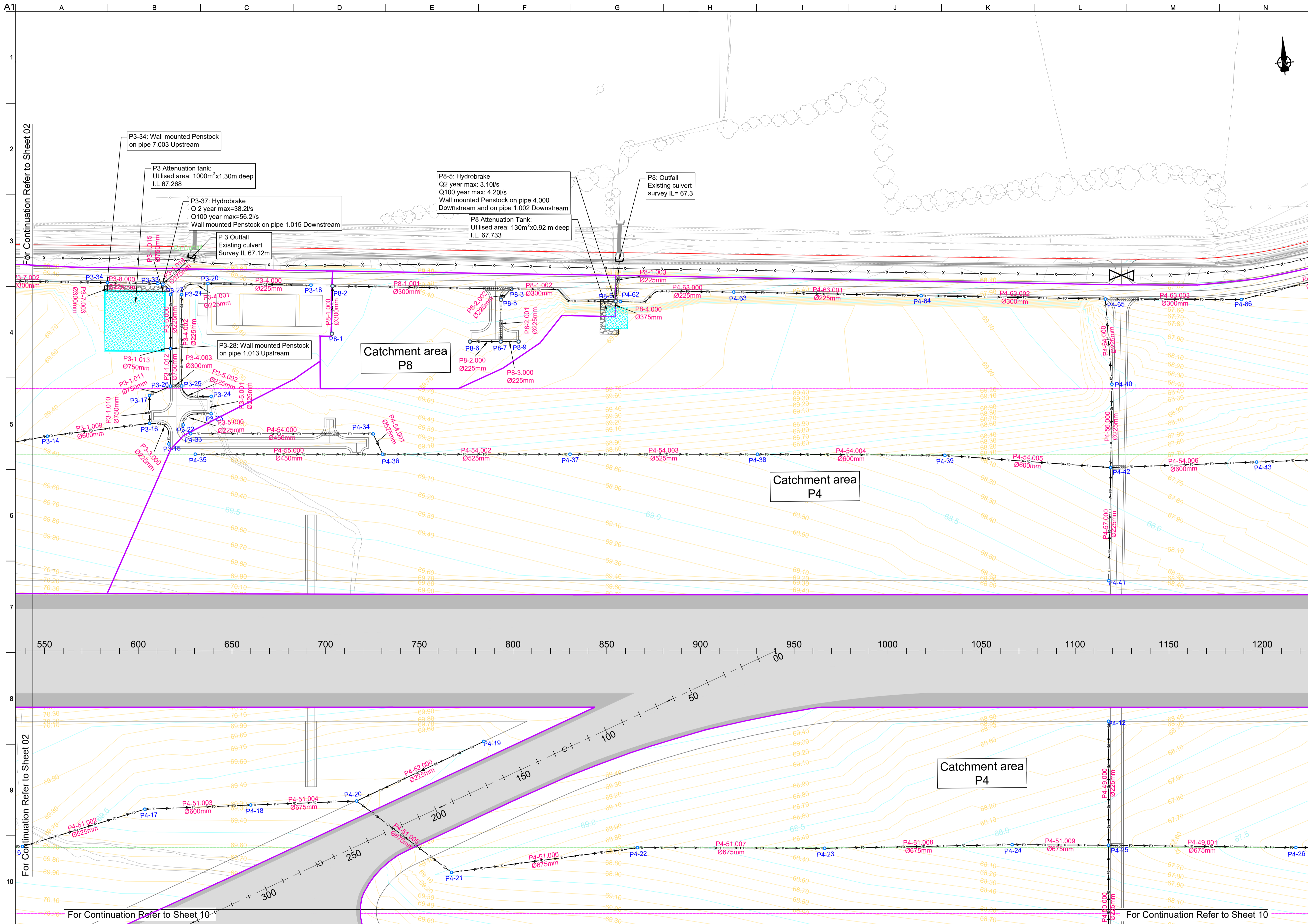
Role: Civil Engineer

Sustainability: CR

Rev	By	Chkd	Appd	Auth
C01	AG	MR	JV	EOD

Date: 25/04/19

Name: EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0552



Note:

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- Drawings to be read in conjunction with Specification EDAD098015-CP2-RF-DZZ-OTHW-SP-C-0503.
- Drawings to be read in conjunction with the relevant Drainage Schedules and Standard Construction Details.
- The Green Area catchments not shown in this drawing are in abeyance and will be displayed in future iterations of the design drawing.

Tanks volume and pipe sizes are estimated based on the following runoff coefficients:

- Green areas = 0.3
- Perimeter roads = 1.0

Legend:

- Site Boundary
- Permanent Fence
- Catchment Boundary
- 140m Runway Strip Boundary
- 105m Clear and Graded Boundary
- Proposed Carrier Drain
- Proposed Carrier Drain Surrounded by concrete
- Attenuation Tank
- Existing Ditch to be regraded according to Schedule
- Proposed Ditch
- Proposed Filter Drain
- Maintenance Access Route
- Ditch Setting-out point
- Proposed Chamber
- Proposed Headwall
- Network Reference
- Pipe Reference
- Pipe Diameter
- Network Reference
- Manhole Reference
- Existing Culvert
- Existing Watermain
- Existing Drainage

Key Plan

0551	0552	0553	0554	0555	0556	0557
0558	0559	0560	0561	0562	0563	0564

Contractor

Consultant

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- Coordinate System: Irish Grid TM 65

Rev	Date	Description	By	Chkd	Appd	Auth
C01	15/10/19	Issue for Construction (Network P3,P4, P8)	AG	MR	JV	EOD

Client

daa
Head Office
Dublin Airport
County Dublin
Ireland
www.daa.ie

Project Title
Dublin Airport
North Runway
Construction Package 2

Drawing Title
Green Areas Drainage
Layout
Sheet 03 of 14

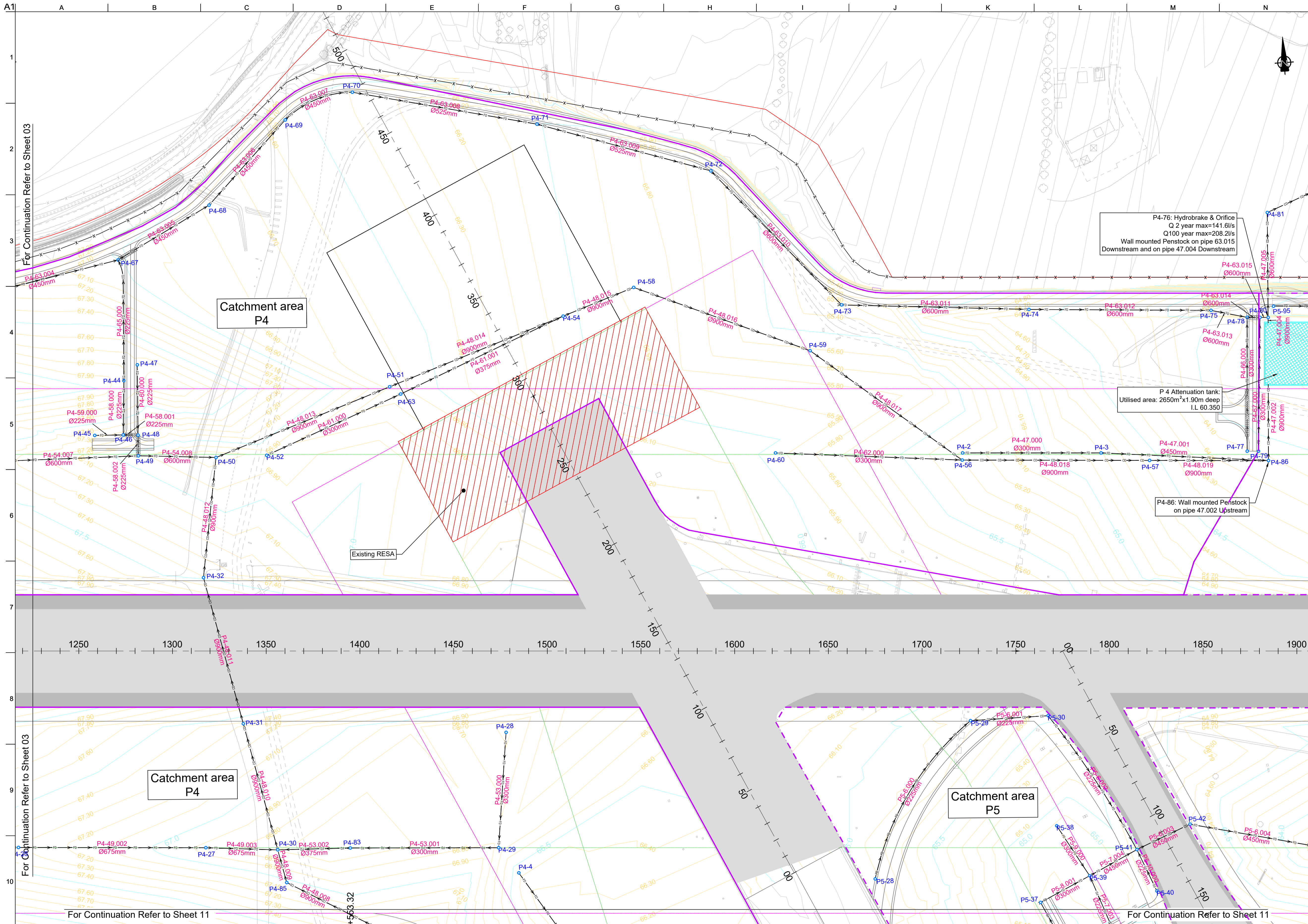
FOR CONSTRUCTION

Scale at A1: 1:1000
Job No: 264540-00

Role: Civil Engineer
Sustainability: CR

Rev	By	Chkd	Appd	Auth	
C01	AG	MR	JV	EOD	
Date	25/04/19	Date	25/04/19	Date	25/04/19

Name: EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0553



Note:

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- Drawings to be read in conjunction with Specification EDAD098015-CP2-RF-DZZ-OTHW-SP-C-0503.
- Drawings to be read in conjunction with the relevant Drainage Schedules and Standard Construction Details.
- The Green Area catchments not shown in this drawing are in abeyance and will be displayed in future iterations of the design drawing.

Tanks volume and pipe sizes are estimated based on the following runoff coefficients:

- Green areas = 0.3
- Perimeter roads = 1.0

Legend:

- Site Boundary
- Permanent Fence
- Catchment Boundary
- 140m Runway Strip Boundary
- 105m Clear and Graded Boundary
- Proposed Carrier Drain
- Proposed Carrier Drain Surrounded by concrete
- Attenuation Tank
- Existing Ditch to be regraded according to Schedule
- Proposed Ditch
- Proposed Filter Drain
- Maintenance Access Route
- Ditch Setting -out point
- Proposed Chamber
- Proposed Headwall
- Network Reference
- Pipe Reference
- Pipe Diameter
- Network Reference
- Manhole Reference
- Existing Culvert
- Existing Watermain
- Existing Drainage
- Existing RESA

Key Plan

0551	0552	0553	0554	0555	0556	0557
0558	0559	0560	0561	0562	0563	0564

Contractor

Consultant

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Rev	Date	Description	By	Chkd	Appd	Auth
C01	15/10/19	Issue for Construction (Network P4)	AG	MR	JV	EOD

Client

daa
Head Office
Dublin Airport
County Dublin
Ireland
www.daa.ie

Project Title
Dublin Airport
North Runway
Construction Package 2

Drawing Title
Green Areas Drainage
Layout
Sheet 04 of 14

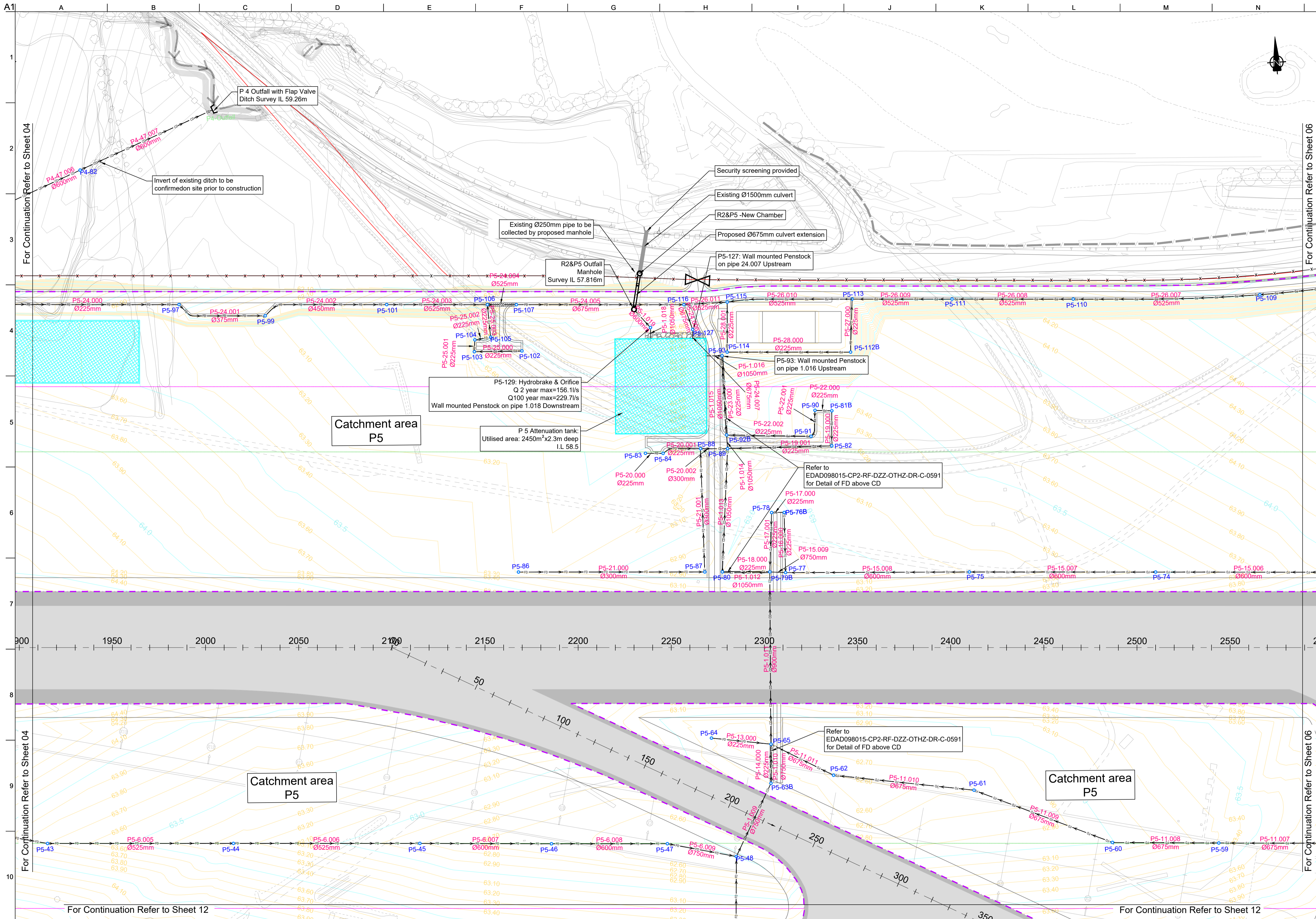
FOR CONSTRUCTION

Scale at A1: 1:1000
Job No: 264540-00

Role: Civil Engineer
Sustainability: CR

Rev	By	Chkd	Appd	Auth	
C01	AG	MR	JV	EOD	
Date	25/04/19	Date	25/04/19	Date	25/04/19

Name: EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0554



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 - Drawings to be read in conjunction with Specification EDAD098015-CP2-RF-DZZ-OTHW-SP-C-0503.
 - Drawings to be read in conjunction with the relevant Drainage Schedules and Standard Construction Details.
 - The Green Area catchments not shown in this drawing are in abeyance and will be displayed in future iterations of the design drawing.

Tanks volume and pipe sizes are estimated based on the following runoff coefficients:

- Green areas = 0.3
- Perimeter roads = 1.0

- Legend:**
- Site Boundary
 - Permanent Fence
 - Catchment Boundary
 - 140m Runway Strip Boundary
 - 105m Clear and Graded Boundary
 - Proposed Carrier Drain
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 - Proposed Filter Drain
 - Maintenance Access Route
 - Ditch Setting -out point
 - Proposed Chamber
 - Proposed Headwall
 - Network Reference
 - Pipe Reference
 - Pipe Diameter
 - Network Reference
 - Manhole Reference
 - Existing Culvert
 - Existing Watermain
 - Existing Drainage

Key Plan

0551	0552	0553	0554	0555	0556	0557
0558	0559	0560	0561	0562	0563	0564

Contractor

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Rev	Date	Description	By	Chkd	Appd	Auth
C01	15/10/19	Issue for Construction (Network P4)	AG	MR	JV	EOD

Client

Project Title
Dublin Airport North Runway Construction Package 2

Drawing Title
Green Areas Drainage Layout Sheet 05 of 14

FOR CONSTRUCTION

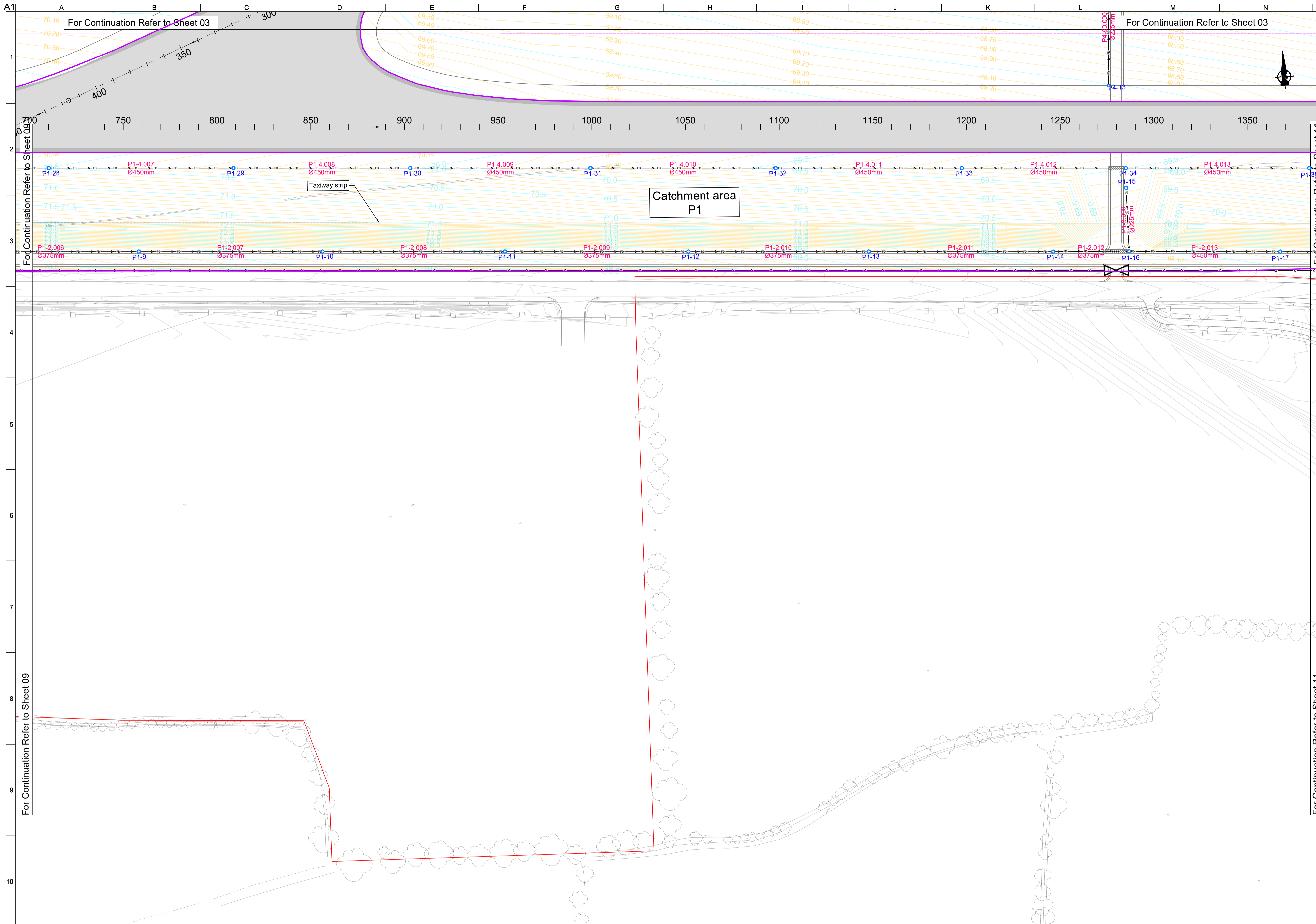
Scale at A1: 1:1000 Job No: 264540-00

Role: Civil Engineer

Sustainability: CR

Rev	By	Chkd	Appd	Auth	
C01	AG	MR	JV	EOD	
Date	25/04/19	Date	25/04/19	Date	25/04/19

Name: **EDAD098015-CP2-RF-DZZ-OTHZ-DR-C-0555**



Note:

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- Drawings to be read in conjunction with Specification EDAD098015-CP2-RF-DZZ-OTHW-SP-C-0503.
- Drawings to be read in conjunction with the relevant Drainage Schedules and Standard Construction Details.
- The Green Area catchments not shown in this drawing are in abeyance and will be displayed in future iterations of the design drawing.

Tanks volume and pipe sizes are estimated based on the following runoff coefficients:

- Green areas = 0.3
- Perimeter roads = 1.0

- Legend:**
- Site Boundary
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 - Proposed Chamber
 - Proposed Headwall
 - Network Reference
 - Pipe Reference
 - Pipe Diameter
 - Network Reference
 - Manhole Reference
 - Existing Culvert
 - Existing Watermain
 - Existing Drainage

Key Plan

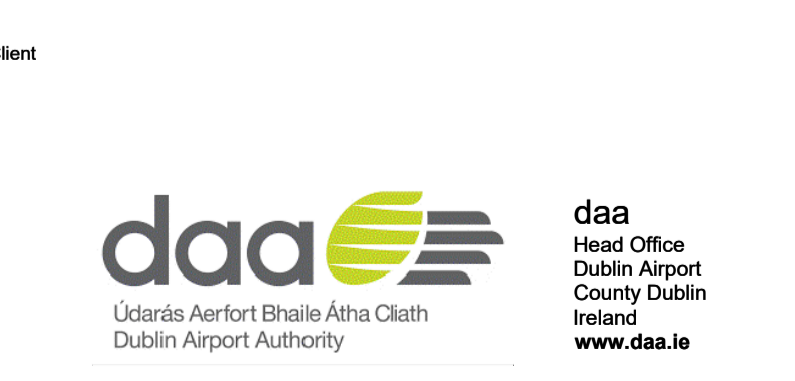
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- Coordinate System: Irish Grid TM 65

Rev	Date	Description	By	Chkd	Appd	Auth
C01	15/10/19	Issue for Construction (Network P1,P4)	AG	MR	JV	EOD



Project Title
Dublin Airport
North Runway
Construction Package 2

Drawing Title
Green Areas Drainage
Layout
Sheet 10 of 14

FOR CONSTRUCTION

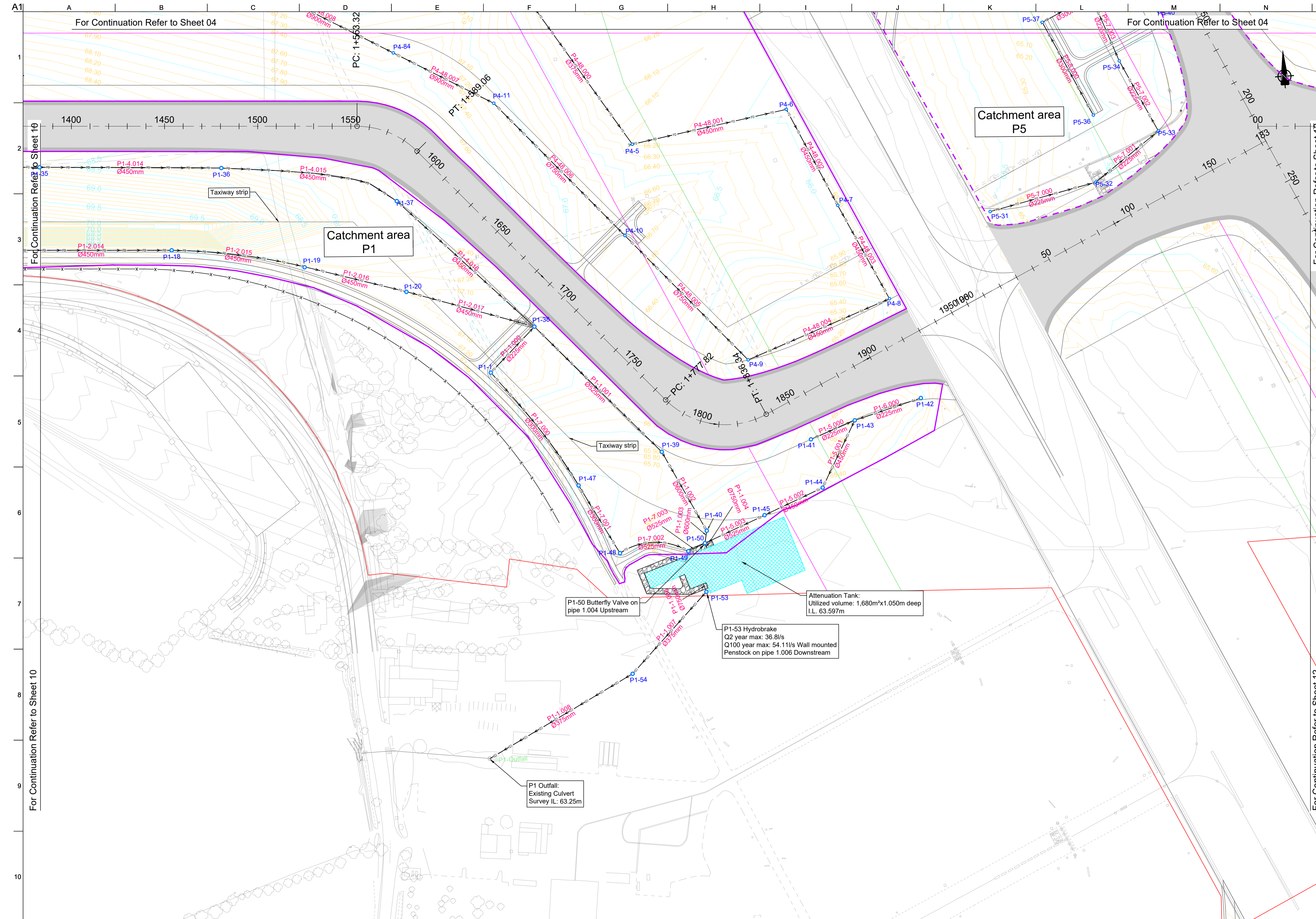
Scale at A1: 1:1000 Job No: 264540-00

Role: Civil Engineer

Suitability: CR

Rev	By	Chkd	Appd	Auth	
C01	GH	MR	JV	EOD	
Date	25/04/19	Date	25/04/19	Date	25/04/19

Name: EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0560



Note:

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- Drawings to be read in conjunction with Specification EDAD098015-CP2-RF-DZZ-OTHW-SP-C-0503.
- Drawings to be read in conjunction with the relevant Drainage Schedules and Standard Construction Details.
- The Green Area catchments not shown in this drawing are in abeyance and will be displayed in future iterations of the design drawing.

Tanks volume and pipe sizes are estimated based on the following runoff coefficients:

- Green areas = 0.3
- Perimeter roads = 1.0

Legend:

- Site Boundary
- Permanent Fence
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- 140m Runway Strip Boundary
- 105m Clear and Graded Boundary
- Proposed Carrier Drain
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- Proposed Ditch
- Proposed Filter Drain
- Maintenance Access Route
- Ditch Setting-out point
- Proposed Chamber
- Proposed Headwall
- Network Reference
- Pipe Reference
- Pipe Diameter
- Manhole Reference
- Existing Culvert
- Existing Watermain
- Existing Drainage

Key Plan

0551	0552	0553	0554	0555	0556	0557
0558	0559	0560	0561	0562	0563	0564

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- Coordinate System: Irish Grid TM 65

Rev	Date	Description	By	Chkd	Appd	Auth
C01	15/10/19	Issue for Construction (Network P1, P4)	AG	MR	JV	EOD

Client

daa
Head Office
Dublin Airport
County Dublin
Ireland
www.daa.ie

Project Title
Dublin Airport
North Runway
Construction Package 2

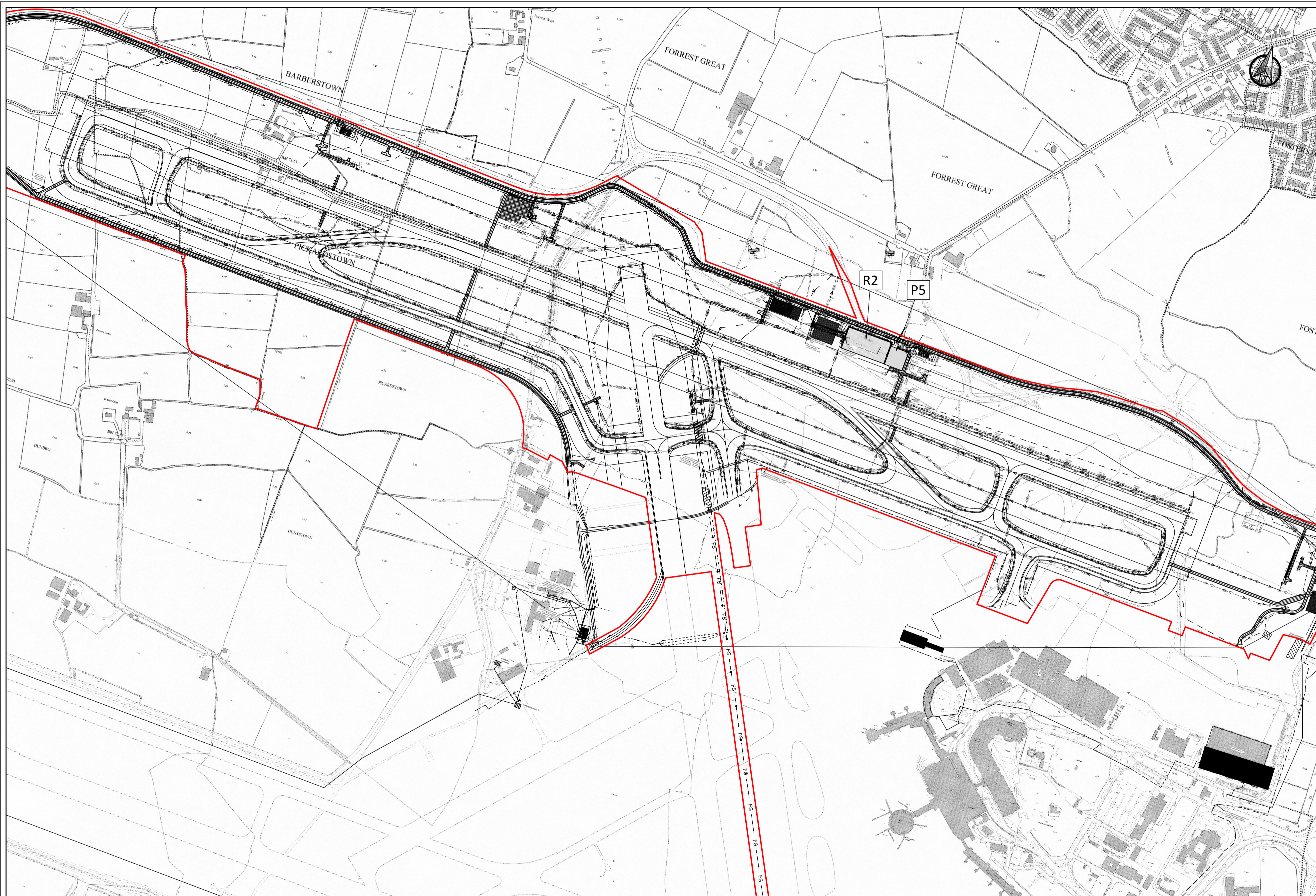
Drawing Title
Green Areas Drainage
Layout
Sheet 11 of 14

FOR CONSTRUCTION

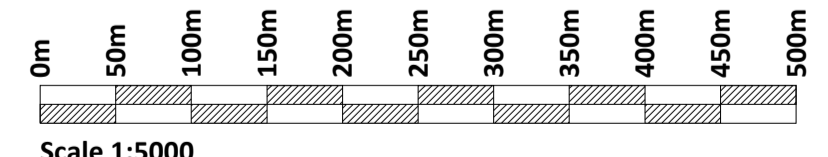
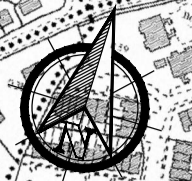
Scale at A1: 1:1000
Job No: 264540-00
Role: Civil Engineer
Sustainability: CR

Rev	By	Chkd	Appd	Auth	
C01	AG	MR	JV	EOD	
Date	25/04/19	Date	25/04/19	Date	25/04/19

Name: EDAD098015-CP2-RF-DZZ-OTHW-DR-C-0561



Legend
— Site Boundary



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Rev.	Description	App By	Date
A	ISSUE FOR COMMENT	BDH	18.02.20

PROJECT	DUBLIN AIRPORT NORTH RUNWAY REMEDATION		
SHEET	1:5000 SITE LAYOUT		

CLIENT				ROADBRIDGE			
Date	18.02.20	Project number	P2214	Scale (@ A1-)	1:5000	Rev	A
Drawn by	SOC	Drawing Number	P2214-0100-0001				
Checked by	JD						

O:\ACAD\2020\P2214\P2214-0100-0001

27 February 2020

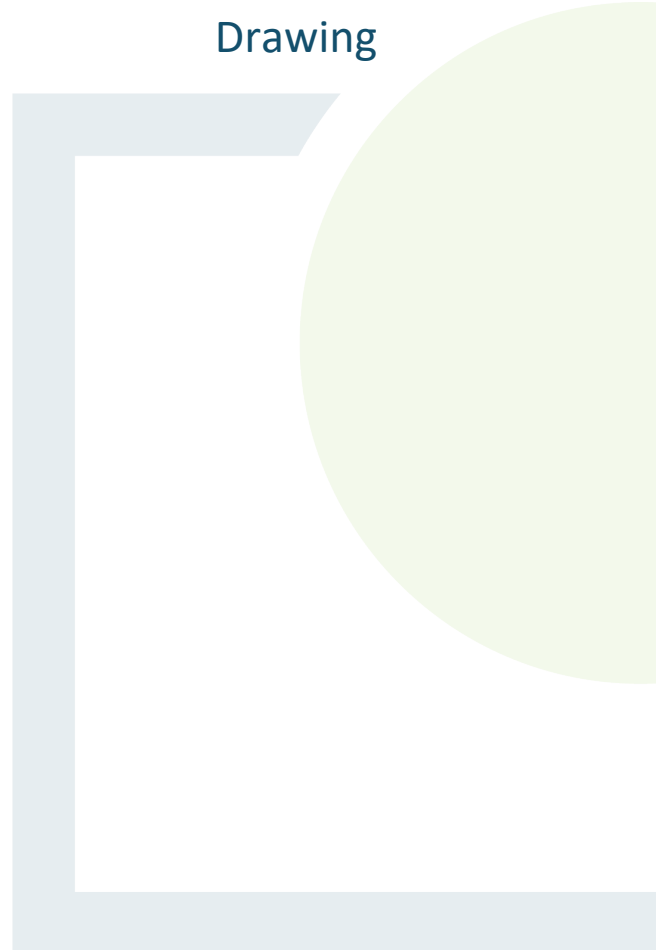


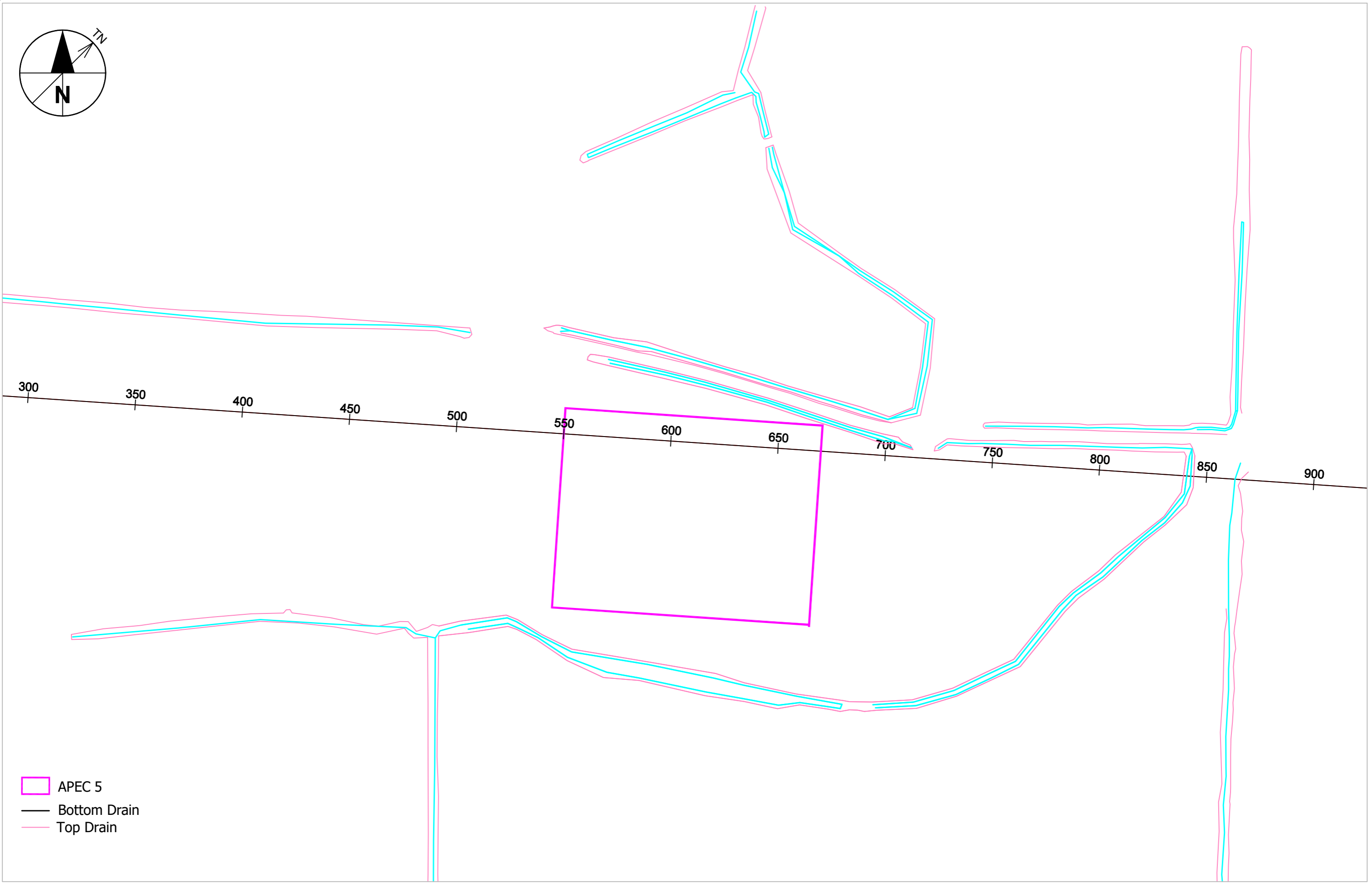
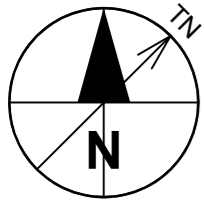
**FEHILY
TIMONEY**

**CONSULTANTS IN ENGINEERING,
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& PLANNING**

APPENDIX 3

Historic Drain Locations
Drawing, Sub-Formation
Survey and Pre-Earthworks
Drainage Drawing and
associated Cross-Section
Drawing





APEC 5
 Bottom Drain
 Top Drain

REV	DATE	DESCRIPTION	ORIG.	CHKD	APPD
0	15/06/21	First Issue	EM		EM

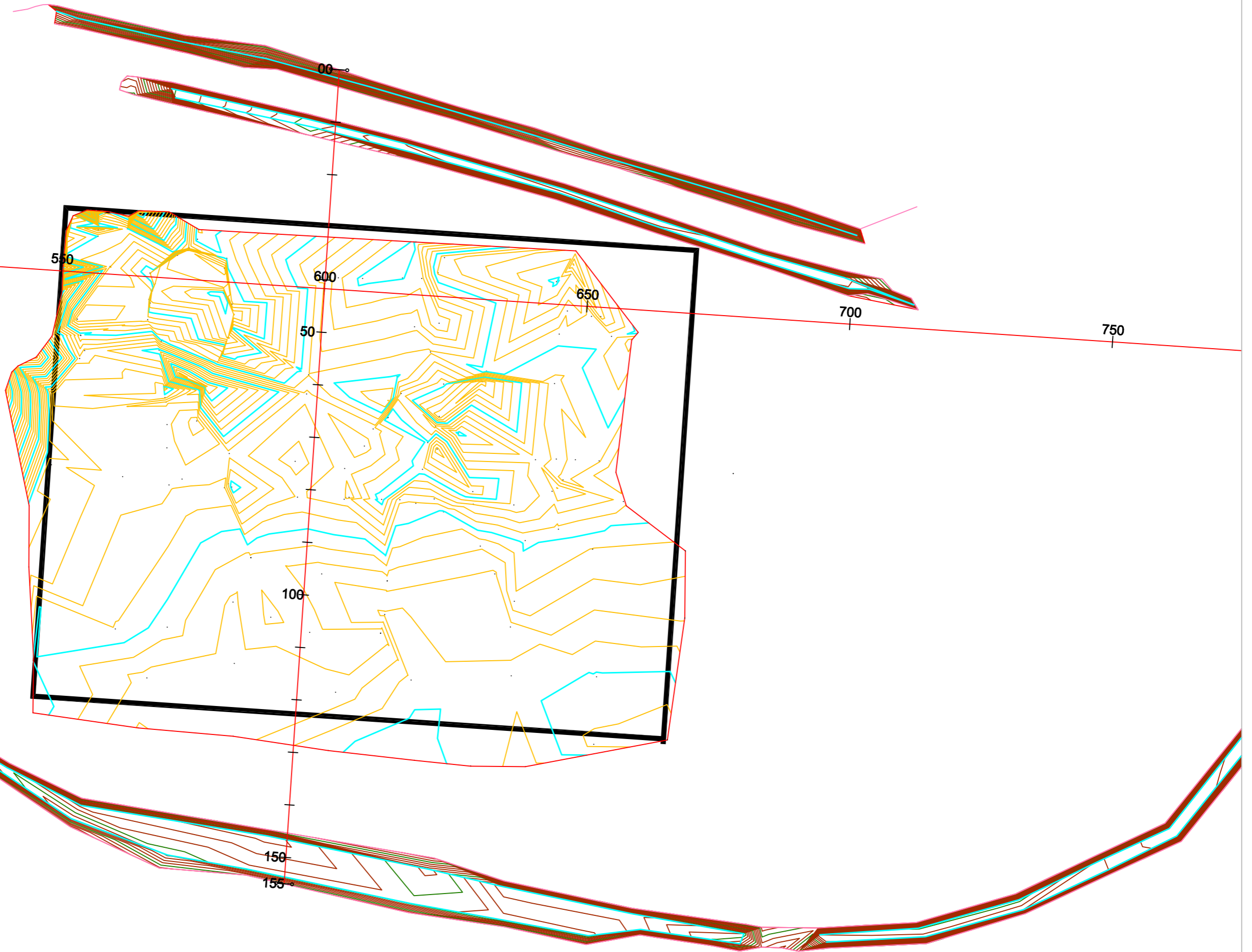
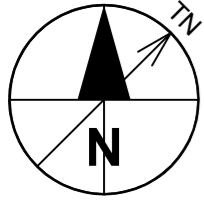
Date: June 2021

Scale (at A3): NA

Drawn By: EM

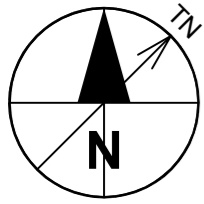
Drawing No.: -

Rev.: 0



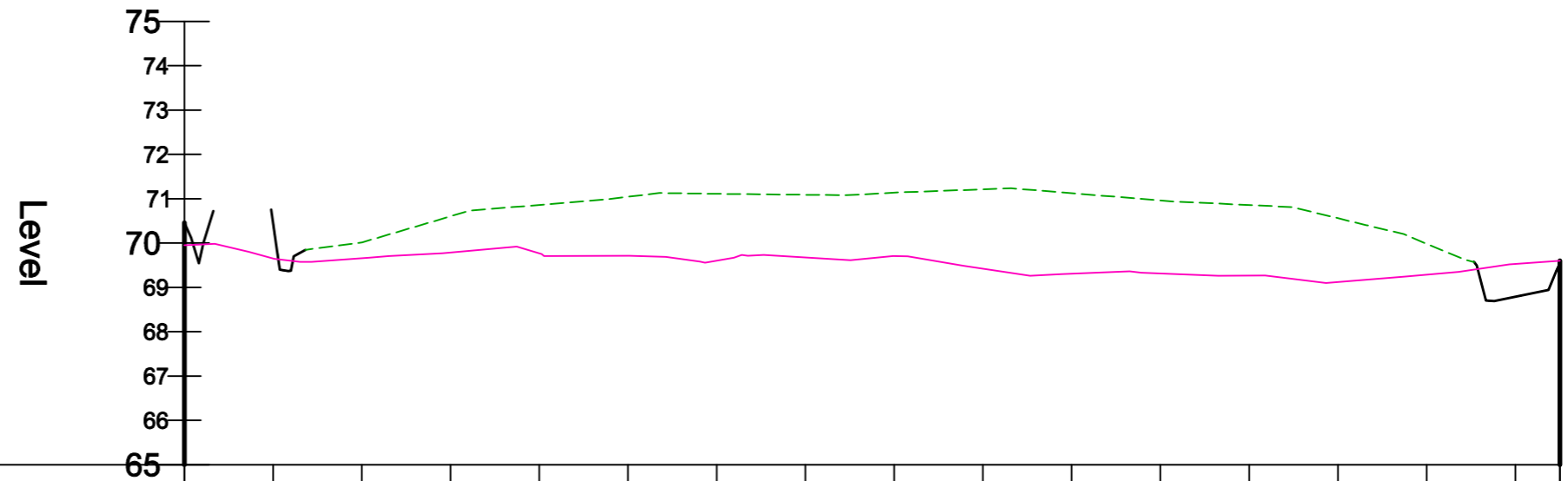
- APEC 5 Subformation levels
- Pre-earthworks drainage

REV	DATE	DESCRIPTION	ORIG.	CHKD.	APPD.
0	11/06/21	First Issue	EM		EM
1	14/06/21	Second Issue	EM		EM



CROSS SECTION CH600
SCALE: H 1:500,V 1:100. DATUM: 65.000

- Original Ground
- Subformation
- Pre-Earthworks drainage



Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	155.028
Subformation Levels	69.952	69.651	69.657	69.789	69.768	69.715	69.605	69.675	69.705	69.423	69.308	69.315	69.265	69.124	69.286	69.529	69.600
Pre-Earthworks Drainage Levels	69.569	68.785															68.787

REV	DATE	DESCRIPTION	ORIG.	CHKD	APPD
0	11/06/21	First Issue	EM		EM
1	28/06/21	First Issue	EM		EM

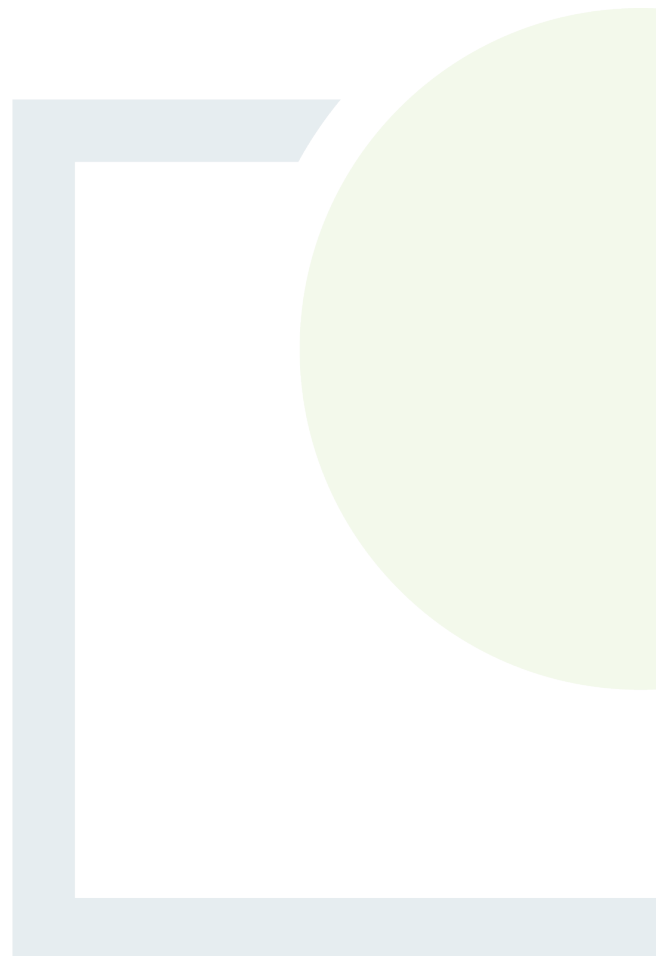


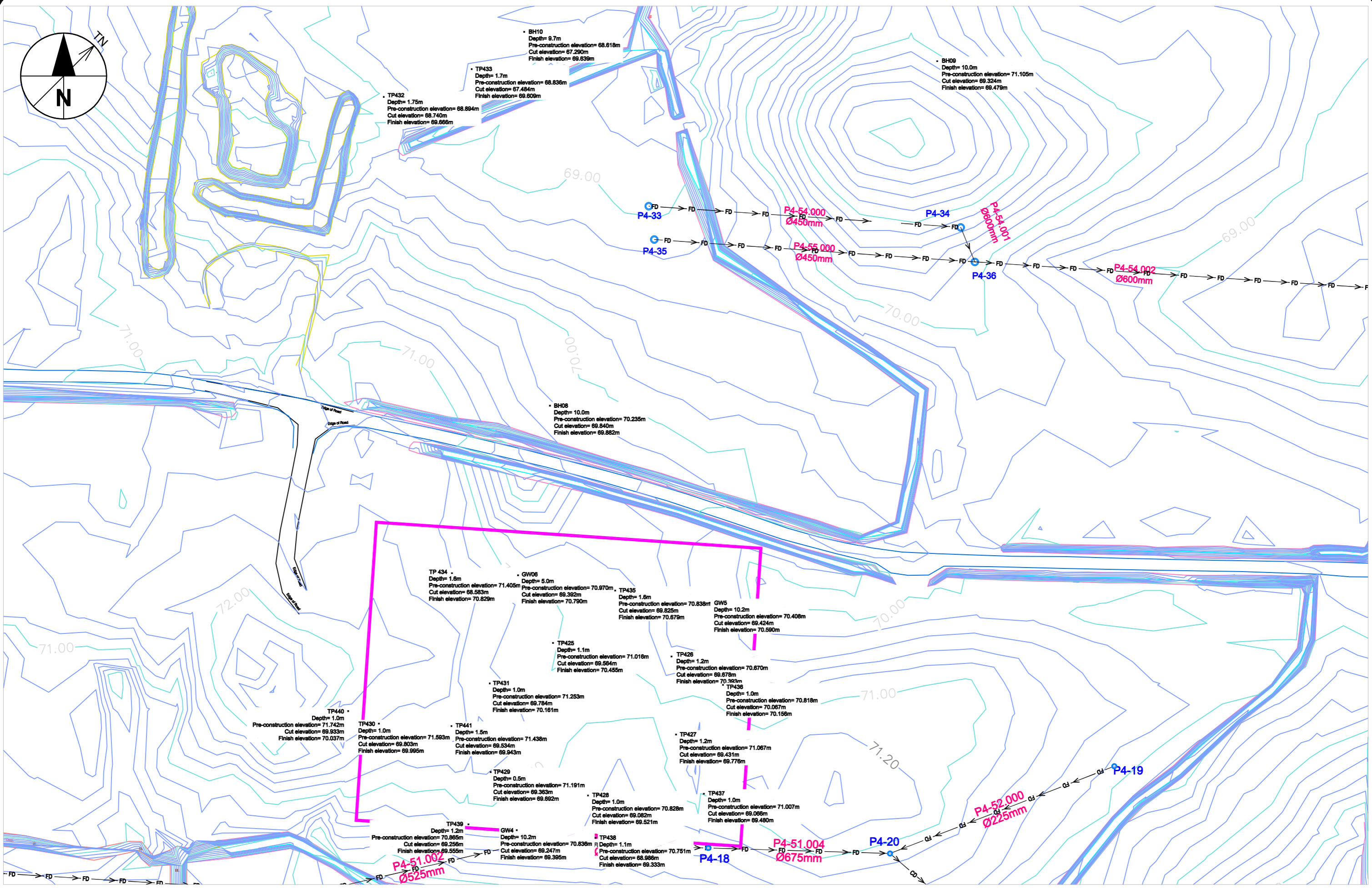
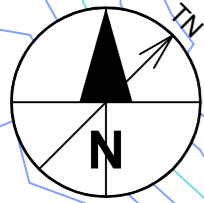
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APPENDIX 4

Pre-Construction, Cut and
Final Profile Level Drawings





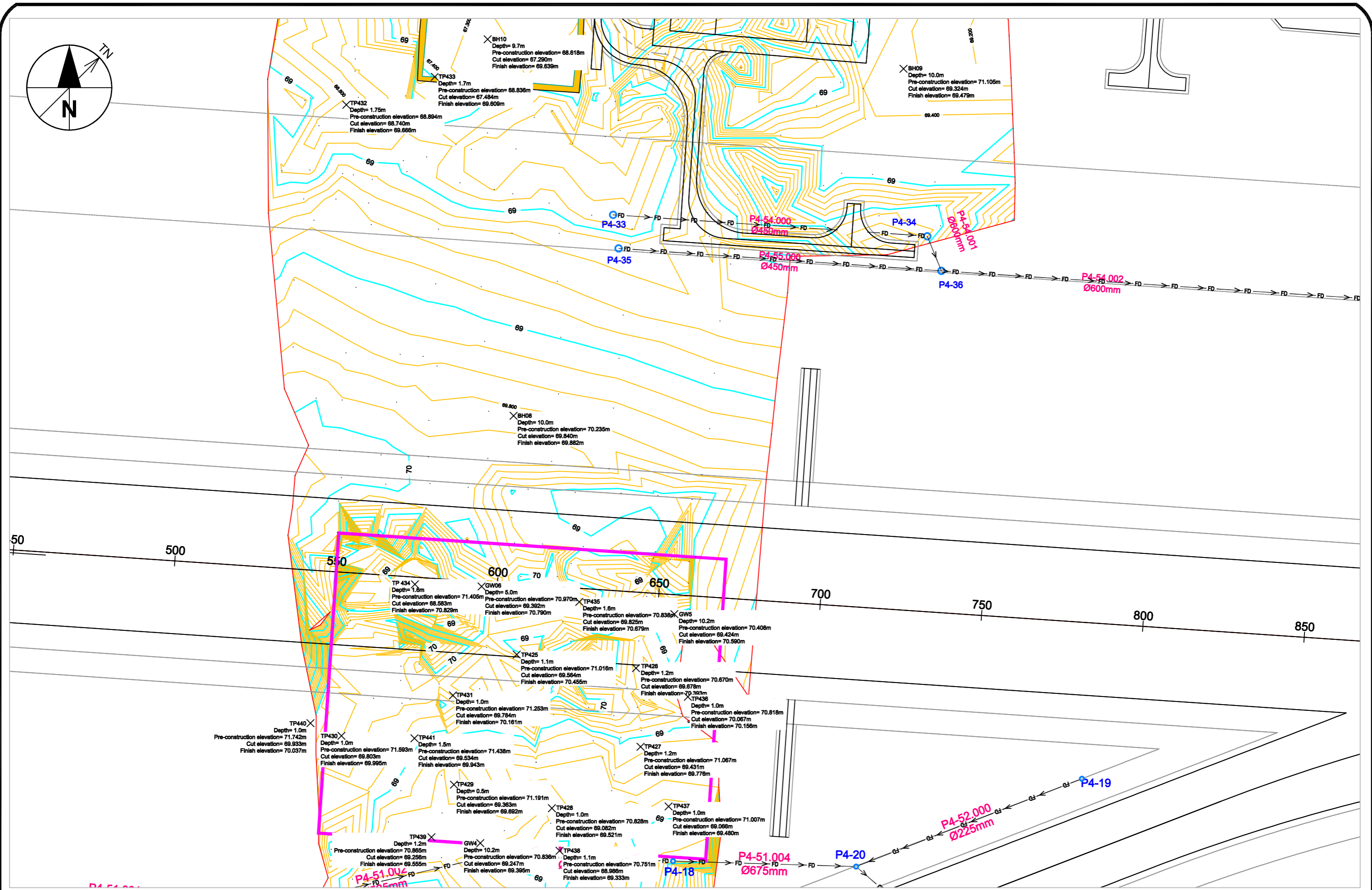
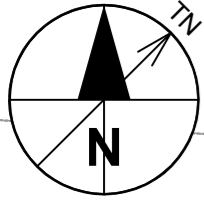
Project: North Runway Construction Package #2

APEC 5
Trial pits and Boreholes location
Pre-construction level

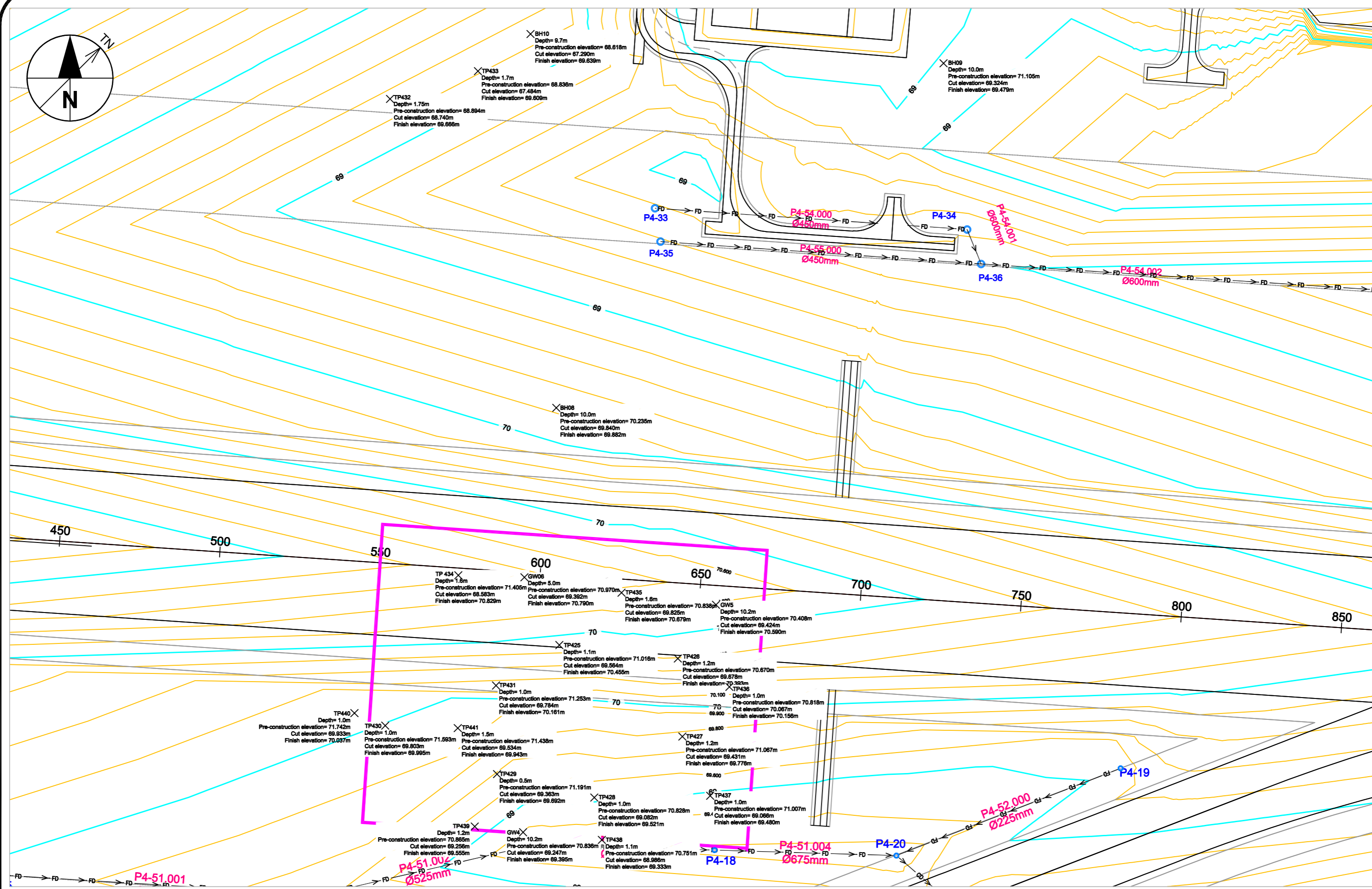
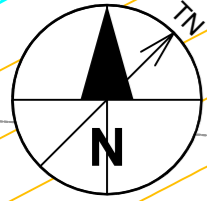
REV	DATE	DESCRIPTION	ORIG.	CHK'D	APP'D
0	07/01/21	First Issue	EM		EM

Date: July 2021
Drawn By: EM

Scale (at A3): NA
Drawing No.: -
Rev.: 0



REV	DATE	DESCRIPTION	ORIG	CHKD	APPD
0	07/07/21	First Issue	EM		EM



REV	DATE	DESCRIPTION	ORIG	CHKD	APPD
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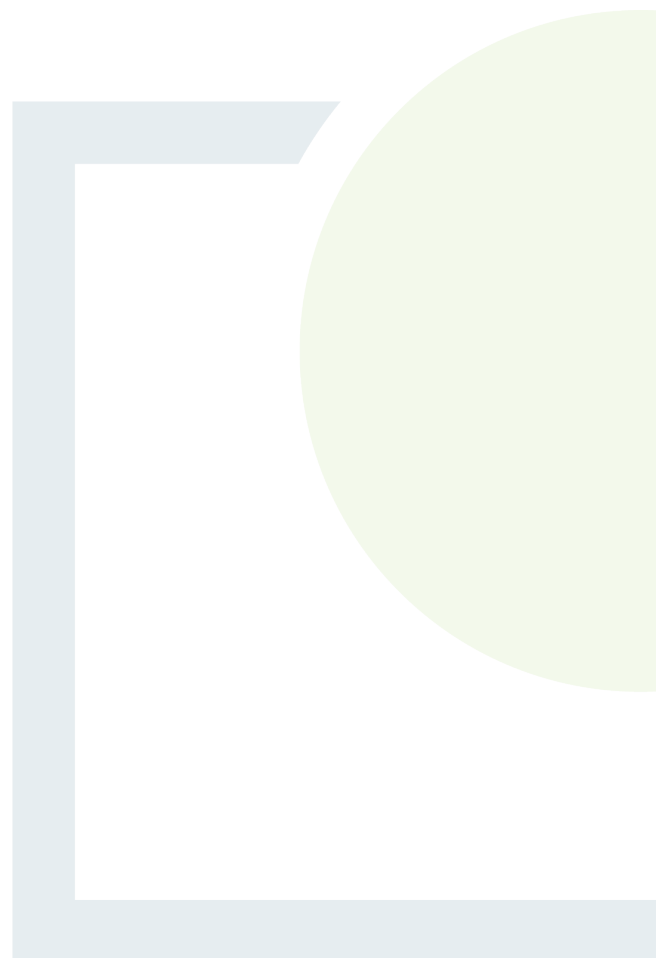


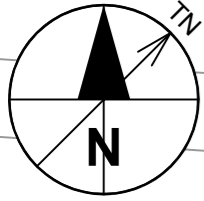
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APPENDIX 5

**APEC 5 Stockpile Location
Drawing**





500

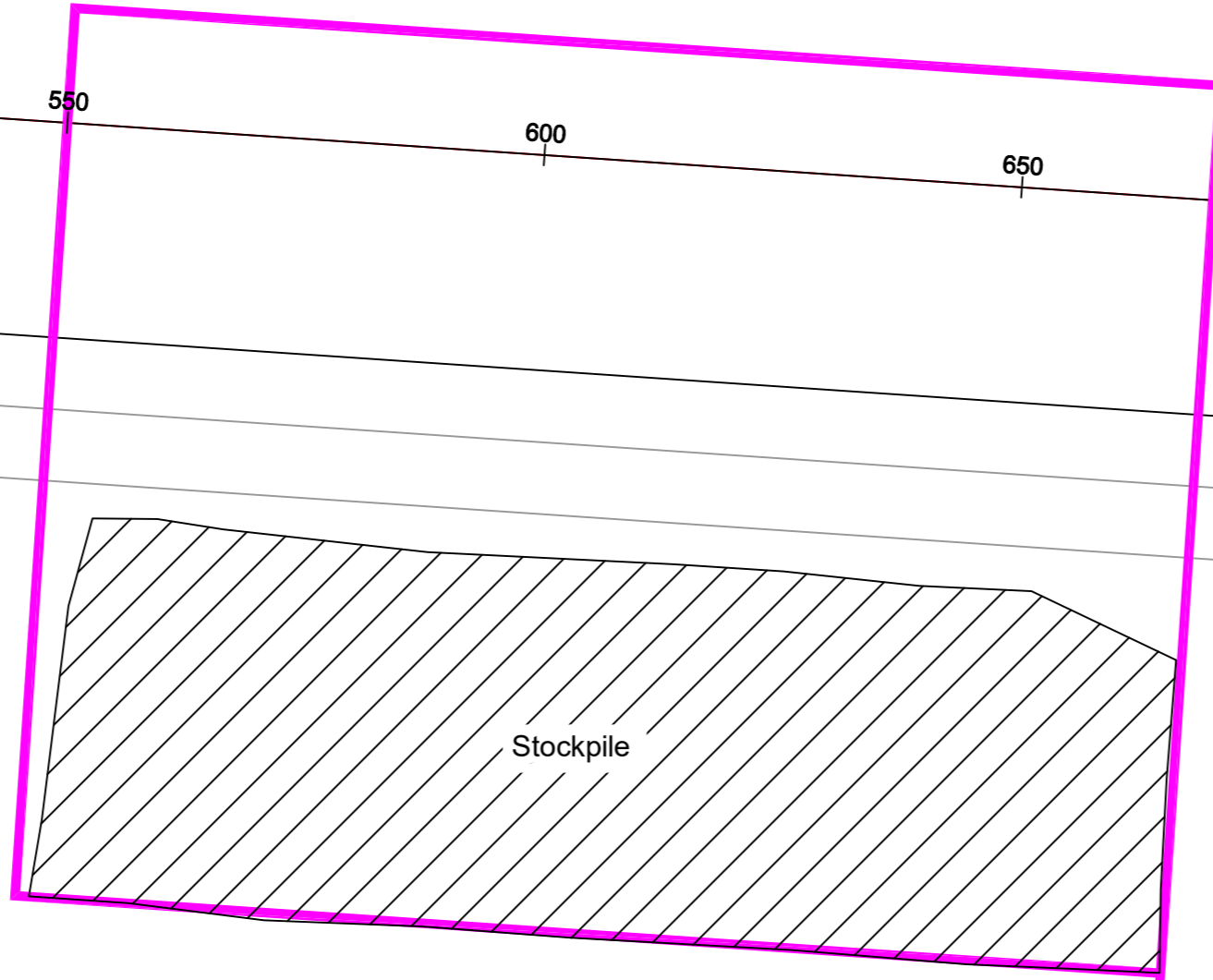
550

600

650

700

750



Stockpile

REV	DATE	DESCRIPTION	ORIG.	CHKD	APPD
0	15/06/21	First Issue	EM		EM

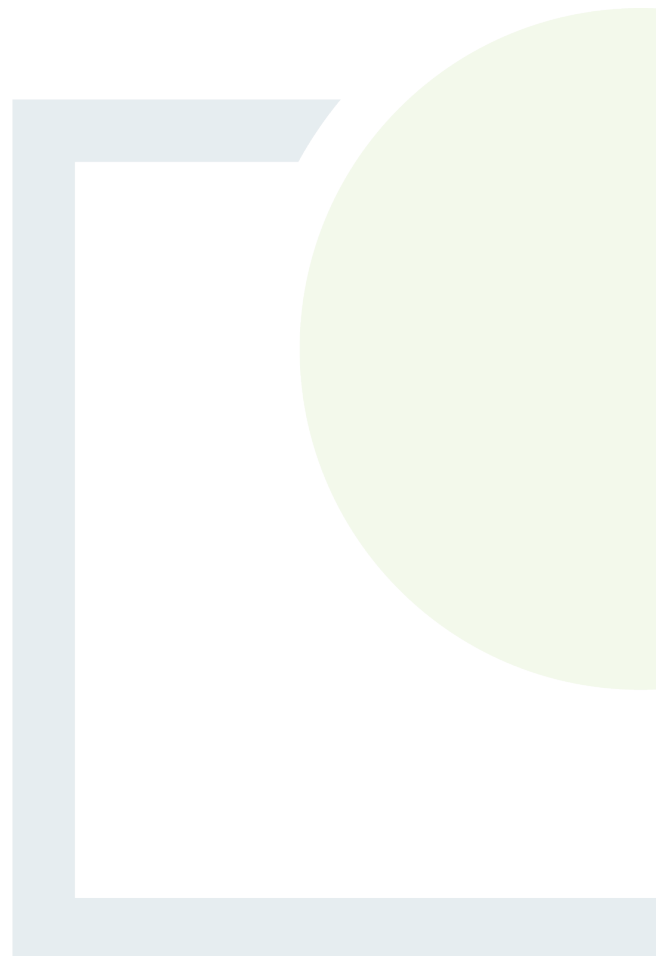


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APPENDIX 6

**RBFCC Proposed Method to
Displace APEC 5 Material**



A PROPOSED METHOD TO DISPLACE APEC 5 MATERIAL

1.0 RATIONALE

A further review by Jacob's land specialist teams on RBFCC APEC 5 Management Proposal & Advisory Discussion has prompted a specialist meeting scheduled for July 10th 2019 in order to flesh out the particulars and endeavour to finalise the proposal. In the interim, RBFCC have requested that a temporary arrangement for the impacted material be considered in order to facilitate movement in that area.

2.0 PROPOSED METHOD OF TEMPORARY WORKS

RBFCC propose to, in the interim, carry out the following works within this area:

- Excavate materials from **within the runway footprint** of APEC 5 area and store locally within APEC 5 boundary **outside the runway footprint (Figure 1 - 3)**
- This material proposed for displacement extends an area of 120m (l) X <50m (w) - north section of APEC 5 boundary **(Figure 1 & 2)**
- The area proposed to temporarily accommodate displaced material extends an area of 120m (l) X <45m (w) - south section of APEC 5 boundary **(Figure 1 & 3)**
- Install a 1m high earthen, sealed berm spanning the works area which will serve to contain the active works and intercept runoff
- Install a section of teram on the south section of APEC 5 to form a barrier between existing ground material and additional soft material layer. This will prevent the potential for migration/leaching of additional PFOS contamination into the receiving soil below
- Ensure all excavated materials are progressively and promptly sealed to prevent airborne particles transport and dissipation into proximal catchment drainage
- Works must only be carried out in the dry

NB * The purple shaded area (Source Zone) (Figure 1) identified during the trial pit investigation with maximum residual concentrations is not excavated in this proposal

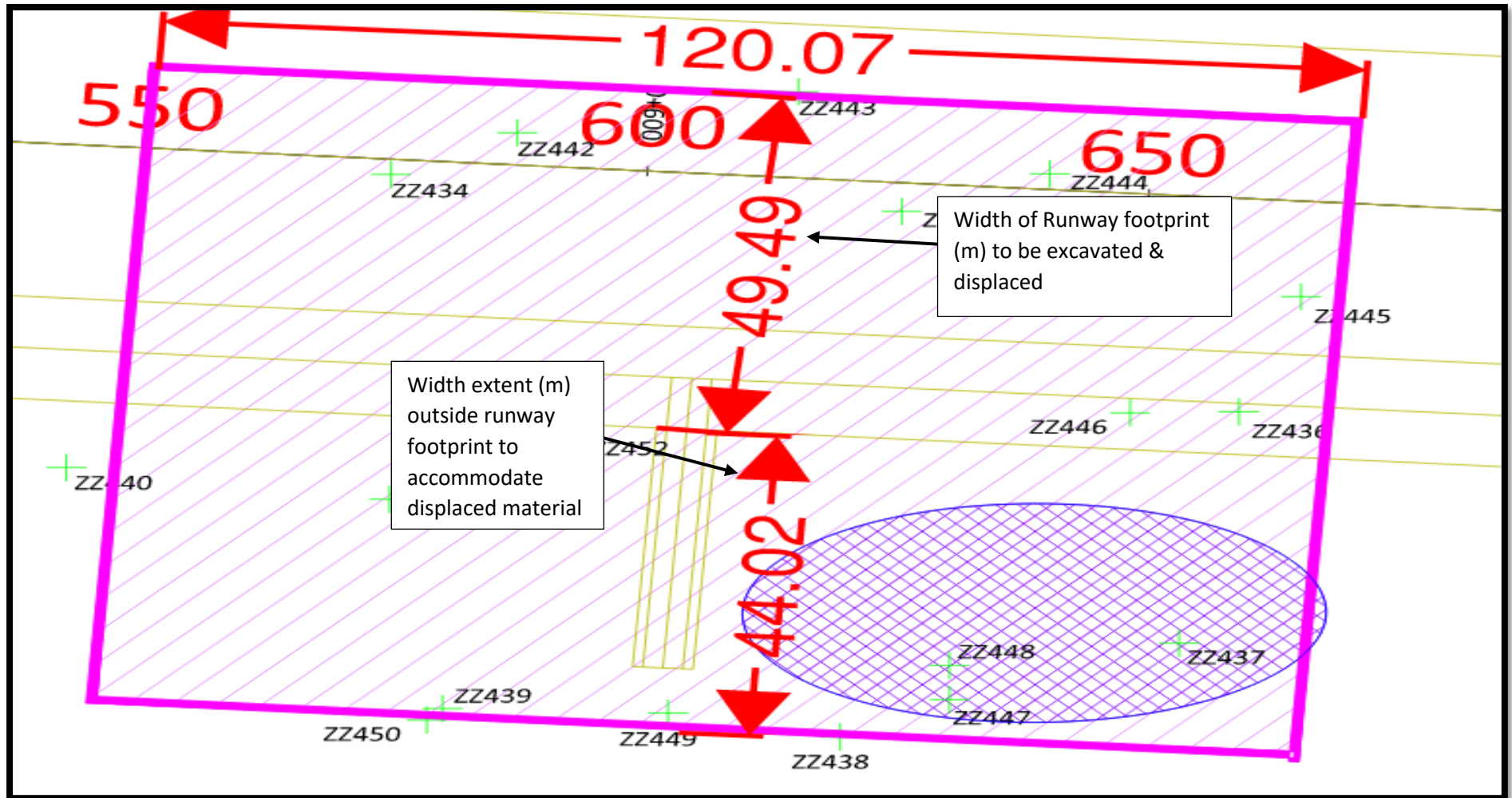


Figure 1: Extent and Directional Area (m) of APEC 5 material displacement



Figure 2: West facing. Approximate depiction of extent of runway footprint - north section of APEC 5



Figure 3: West & SW facing. Arrows depict directional area proposed for displaced material - south section of APEC 5

3.0 EXCAVATION WORKS PARTICULARS

3.1 PREPARATION PHASE

- Demarcation work area within the APEC5 work zone- appropriate signage should be placed on the fencing, depicting the site as an exclusion zone
- Only appropriate PPE / inducted personnel are to carry out work in this area

3.2 EXCAVATION PHASE

- Plant being used must be appropriate for the work and maintained in good condition
- Adequate shoring, benching or battering should be undertaken to minimise the risk of wall collapse
- At the cessation of excavated works, Signage to be erected – material not to be moved without authorisation

3.3 CONSTRUCTION WORKERS

- Although briefed during the induction process, workers to be provided a more detailed brief on the soil contamination issues on site
- Workers are to avoid unnecessary disturbance of the ground or contact with soils
- Workers and staff undertaking soil excavation related activities should wear the appropriate personal protective equipment (PPE) as outlined RBFCC Health & Safety Management Plan

3.4 DUST SUPPRESSION

During works it may be necessary to control dust generation to control the risk of exposure of contaminated material to workers. Dust suppression measures should be adopted to reduce the risk of generation of dust from potentially contaminated soils. Dust suppression techniques may include:

- Dampening down of the site through means of a water bowser to ensure the site surface remains clean.
- Ensure water emitted as mist to prevent surface run-off

- Water sources must be obtained from a clean source e.g. contains no elevated contaminants including PFOA/PFOS contaminants
- When excavating, care must be taken not to overfill the bucket to prevent soil from escaping
- The excavator bucket should be emptied directly onto the surface and not from height

3.5 DECONTAMINATION

- Plant and equipment is required to be decontaminated prior to leaving site
- Appropriate waste disposal bins should also be placed in this decontamination area for disposable gloves, etc.
- Where machinery has been in contact with site soils (and where possible), decontamination should be undertaken using a waterless method where possible to minimise the generation of wastewater - this may be undertaken using dry brushes (hand tooling – no water).
- Once decontamination is complete, the equipment and tools will be inspected by the RBFCC Environmental Manager to ensure the process has been satisfactory

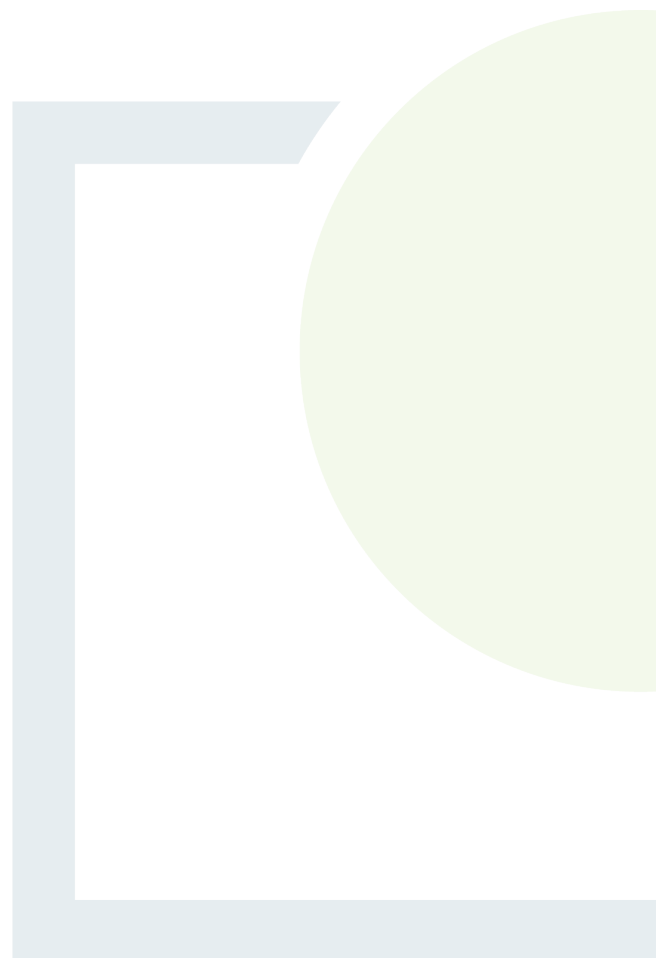


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APPENDIX 7

APEC 5 Displacement Works
Photographs



Excavation of Material for Stockpile



Sectional stockpiling and surfacing along APEC 5 area



View East at APEC 5 Footprint



View East at APEC 5 Footprint



View East at Material Stockpile



View South East at Material Stockpile



View West at Material Stockpile



Collection of 'Perched' Groundwater in APEC5 footprint



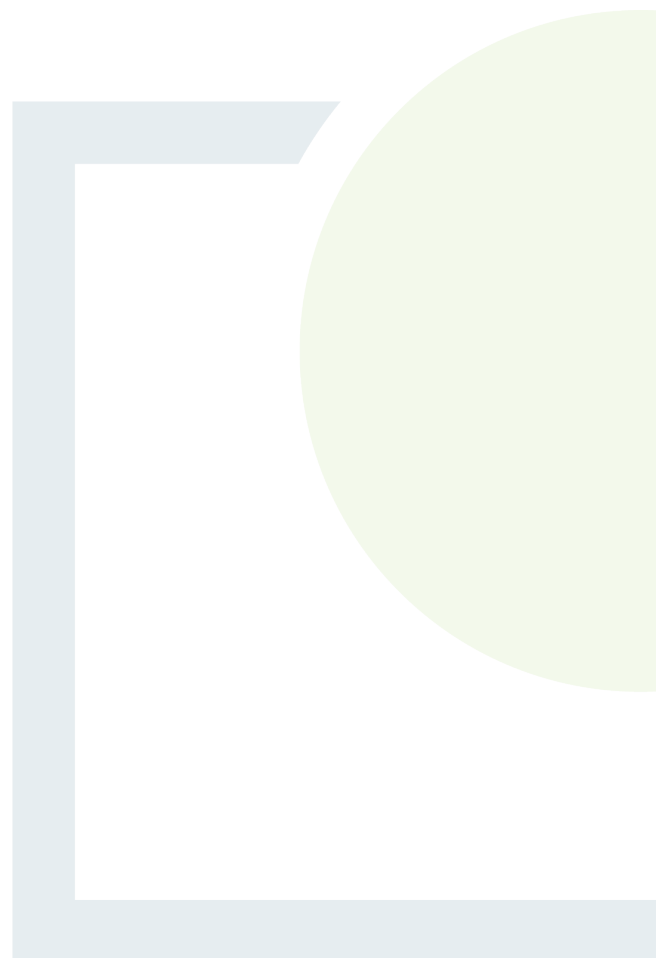


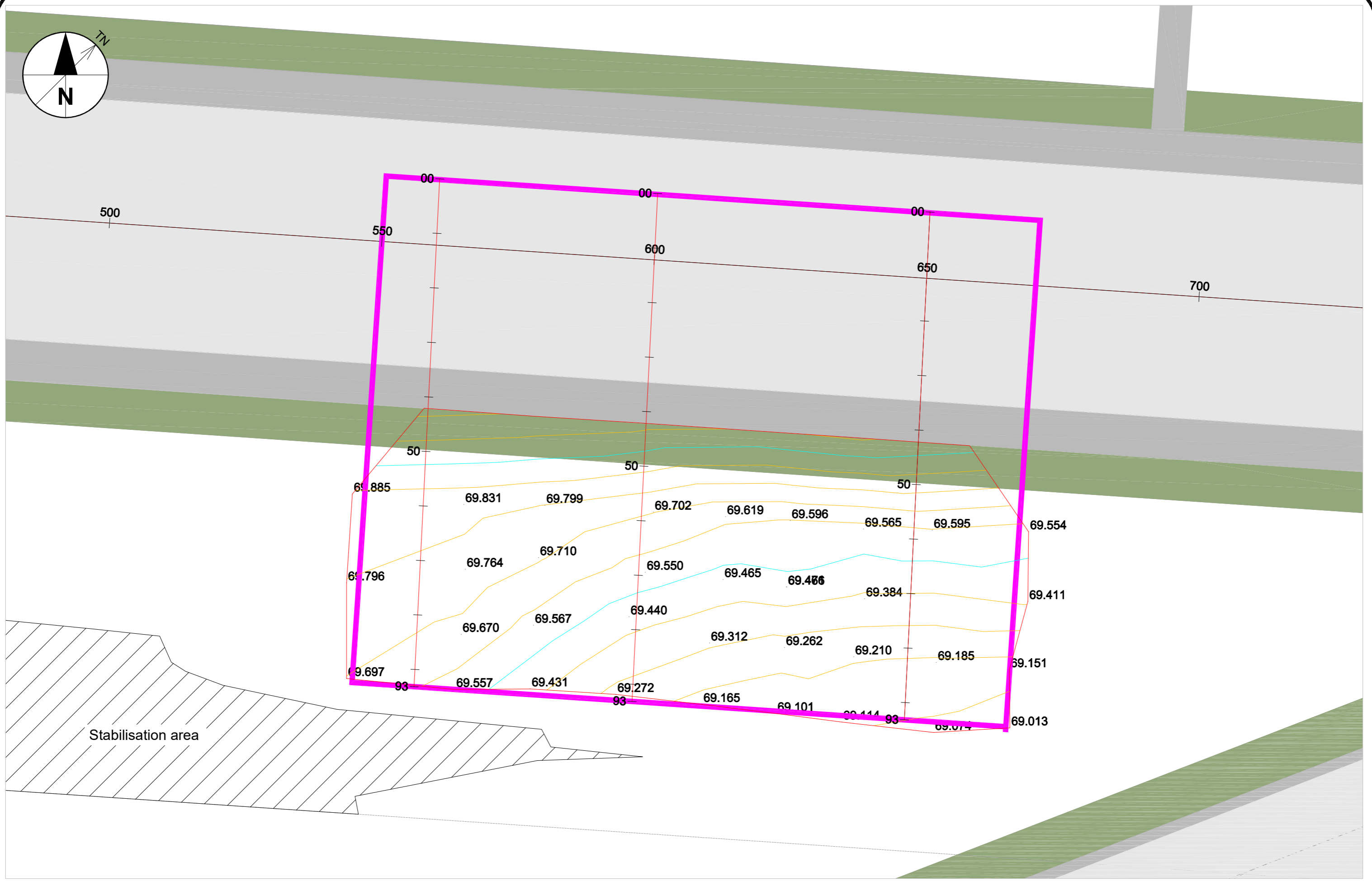
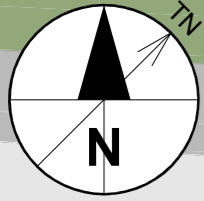
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APPENDIX 8

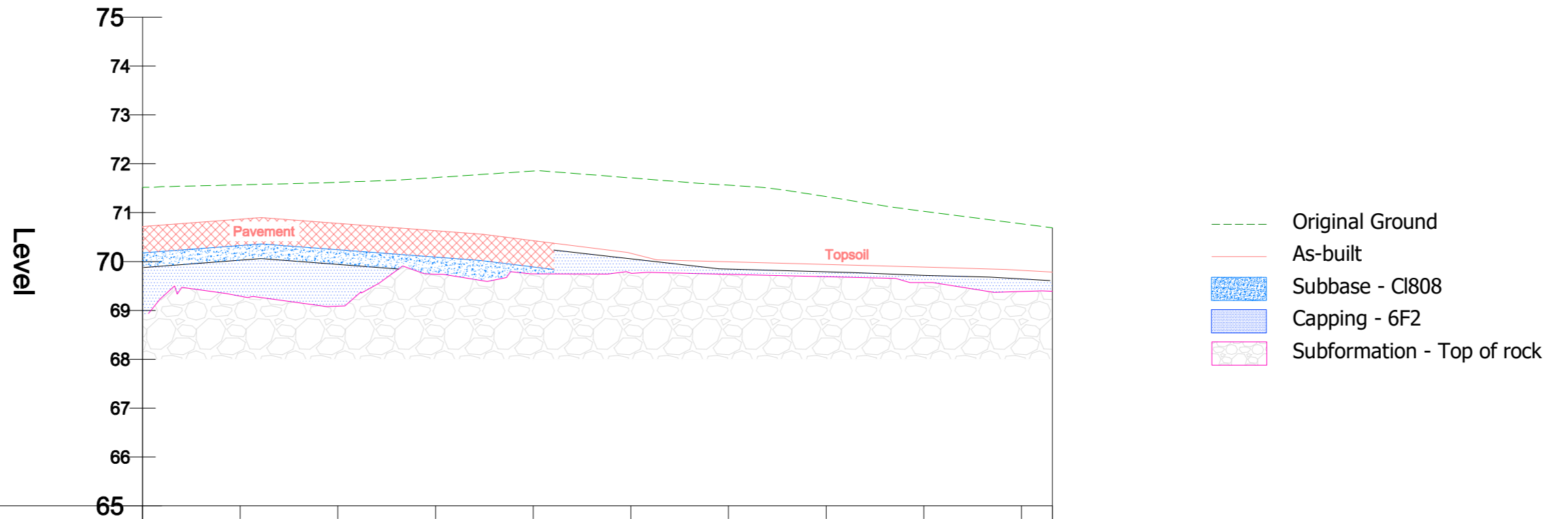
Capping Graded Strip Drawing
and associated Cross-Section
Drawings





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0	11/06/21	First Issue	EM		EM
1	15/06/21	Second Issue	EM		EM

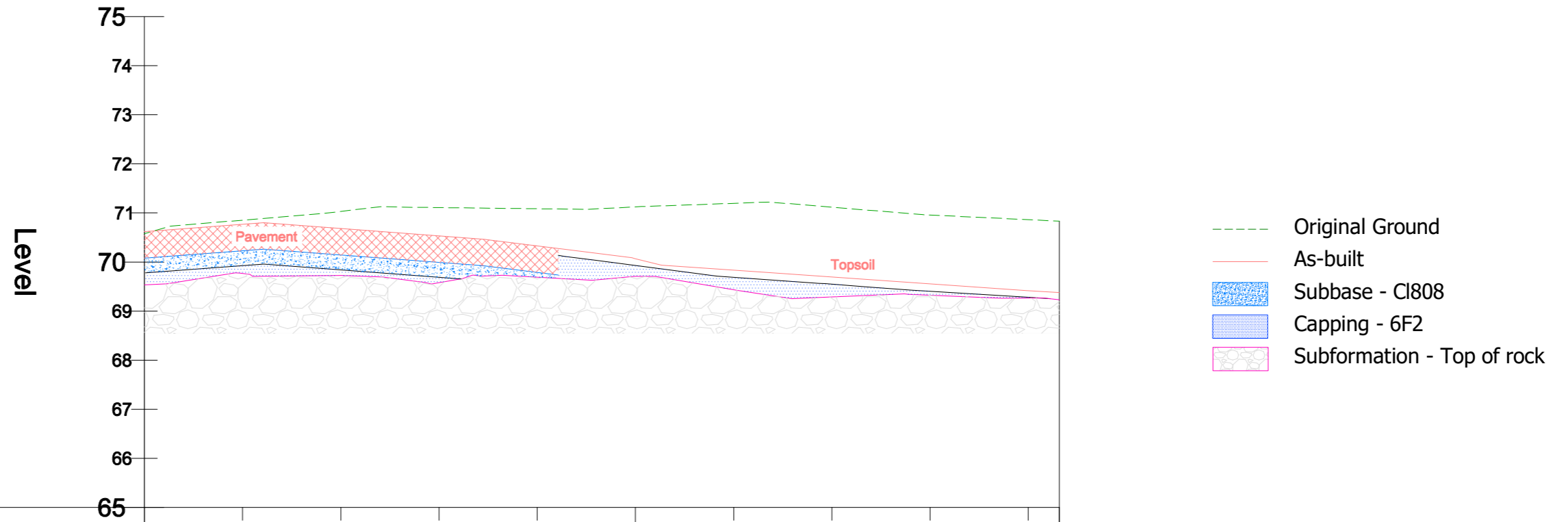
CROSS SECTION CH560
SCALE: H 1:500,V 1:100. DATUM: 65.000



Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	93.159
Original Ground Levels	71.513	71.569	71.620	71.718	71.853	71.711	71.562	71.328	71.029	70.772	70.691
As-built Levels		70.868	70.782	70.631	70.428	70.169	69.995	69.940	69.885	69.820	

REV	DATE	DESCRIPTION	ORIG.	CHKD	APPD
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1	14/06/21	Second Issue	EM		EM

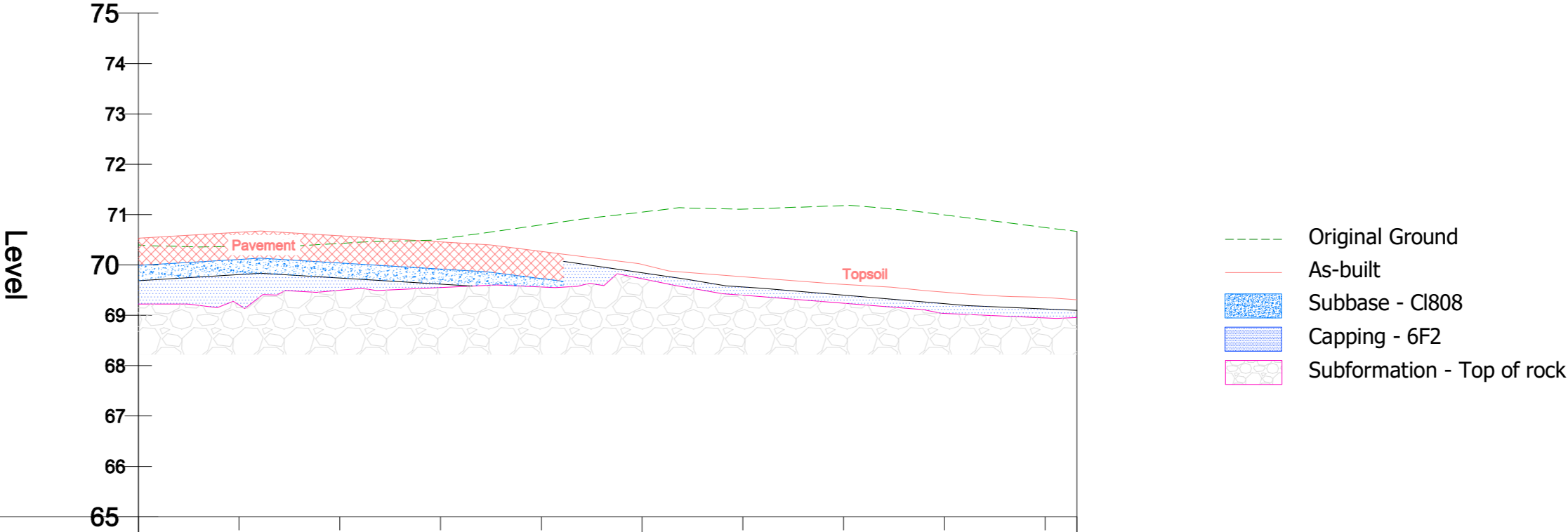
CROSS SECTION CH600
SCALE: H 1:500,V 1:100. DATUM: 65.000



Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	93.159
Original Ground Levels	70.577	70.853	71.032	71.109	71.085	71.123	71.196	71.117	70.958	70.863	70.833
As-built Levels		70.768	70.682	70.531	70.328	70.068	69.834	69.694	69.555	69.417	

REV	DATE	DESCRIPTION	ORIG.	CHKD	APPD
0	11/06/21	First Issue	EM		EM
1	14/06/21	Second Issue	EM		EM

CROSS SECTION CH650
SCALE: H 1:500,V 1:100. DATUM: 65.000



Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	93.159
Original Ground Levels	70.397	70.368	70.429	70.514	70.797	71.050	71.108	71.179	70.995	70.743	70.665
As-built Levels		70.649	70.580	70.460	70.270	70.011	69.765	69.613	69.460	69.355	

REV	DATE	DESCRIPTION	ORIG.	CHKD	APPD
0	11/06/21	First Issue	EM		EM
1	14/06/21	Second Issue	EM		EM

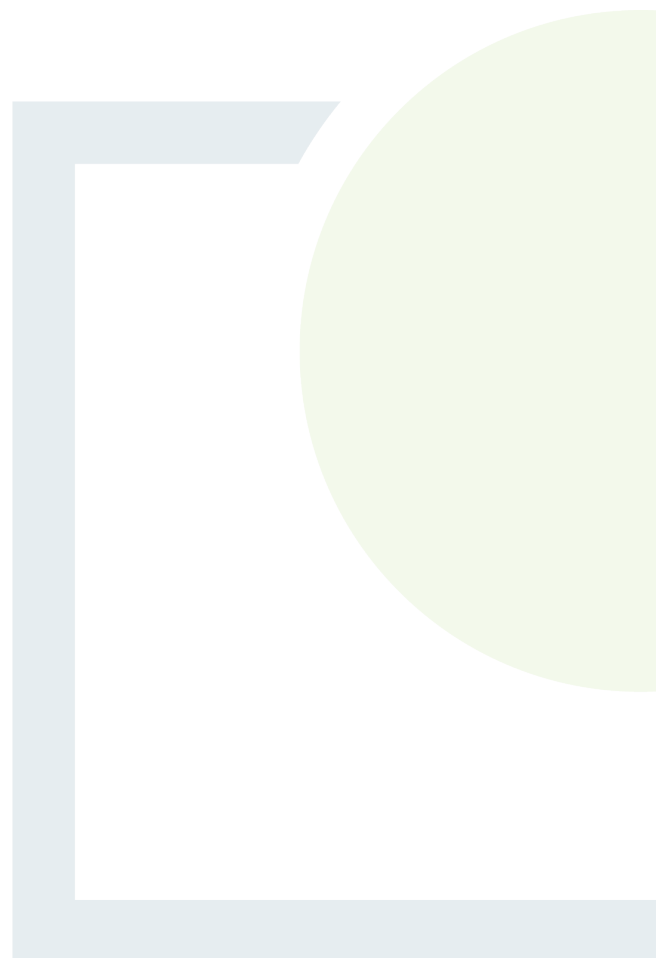


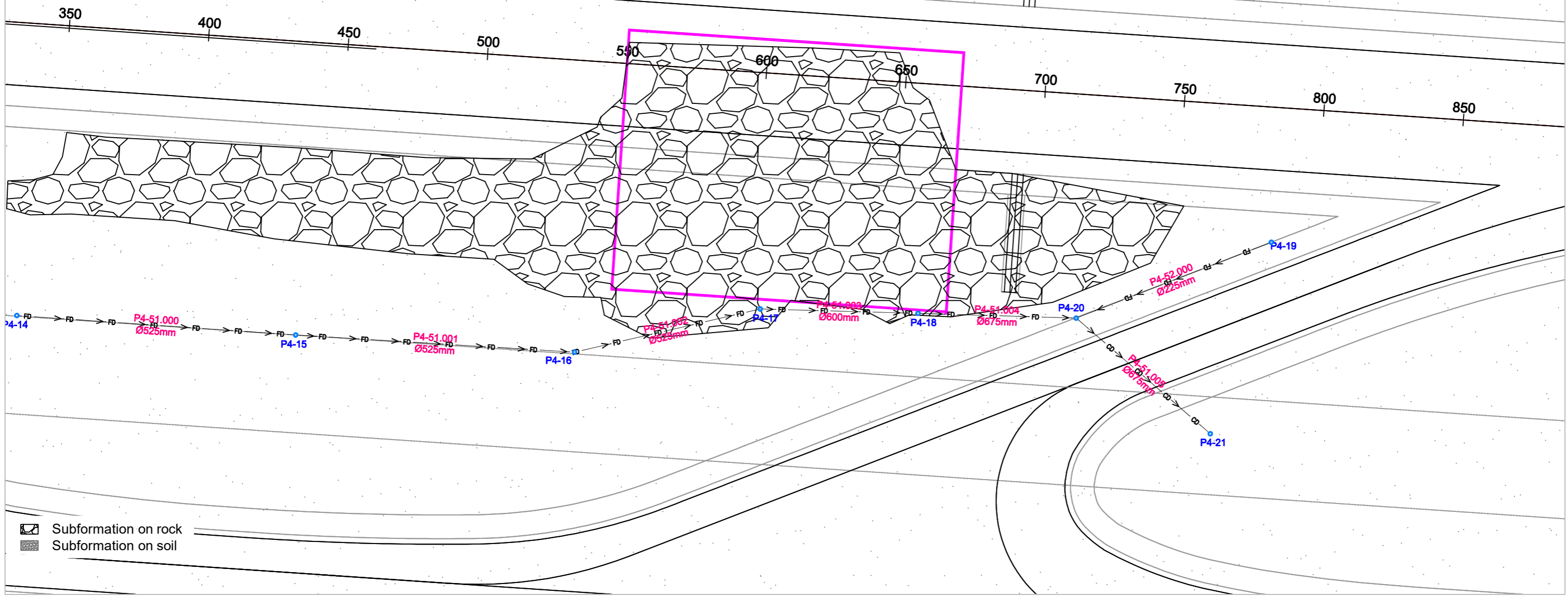
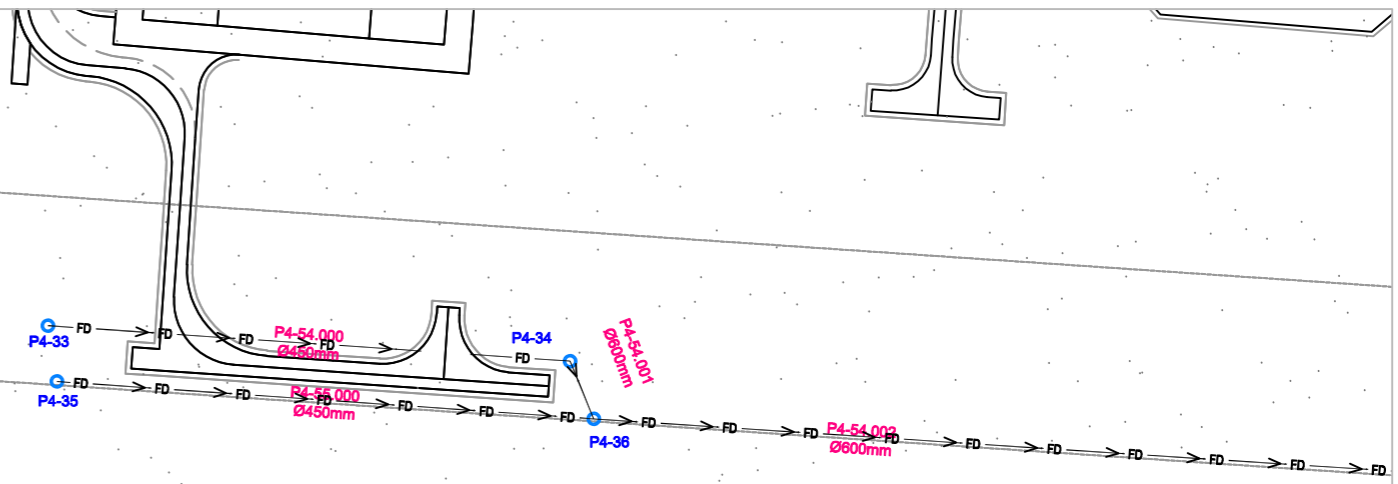
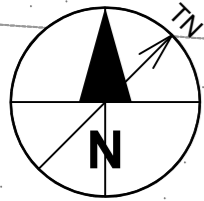
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APPENDIX 9

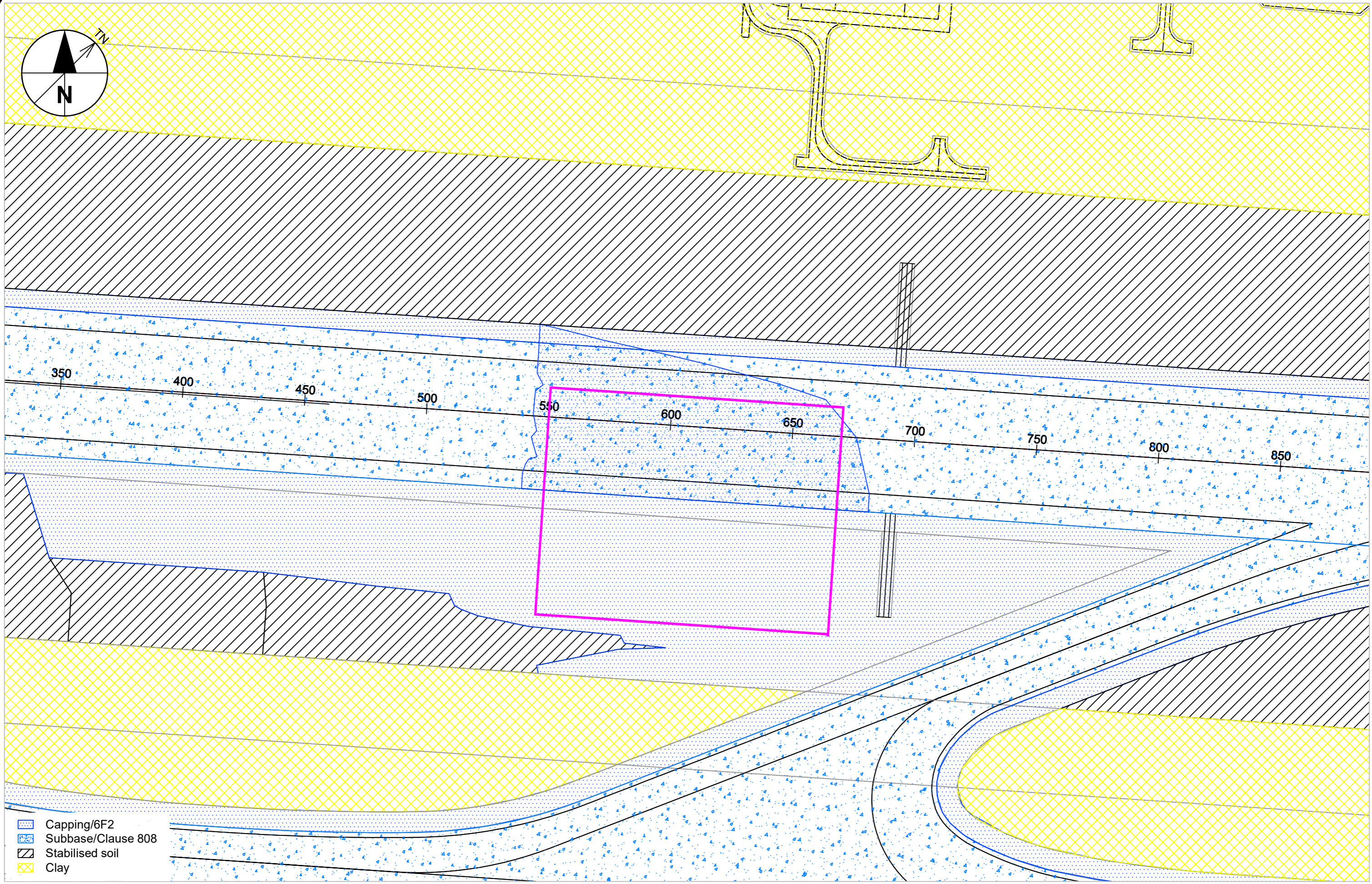
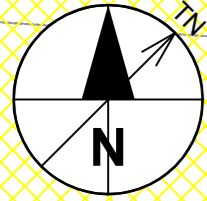
**APEC 5 Sub-Formation Type
and Filling Materials Placed
Drawings**









 Subformation on rock
 Subformation on soil

REV	DATE	DESCRIPTION	ORIG.	CHKD	APPD
0	28/06/21	First Issue	EM		EM



-  Capping/6F2
-  Subbase/Clause 808
-  Stabilised soil
-  Clay

REV	DATE	DESCRIPTION	ORIG	CHKD	APPD
0	25/06/21	First Issue	EM		EM

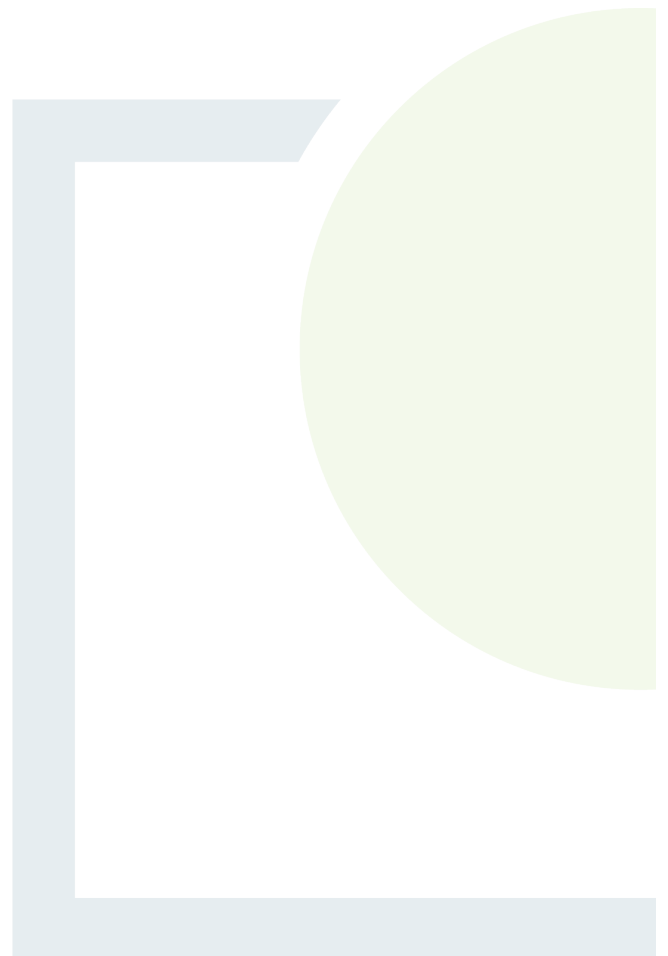


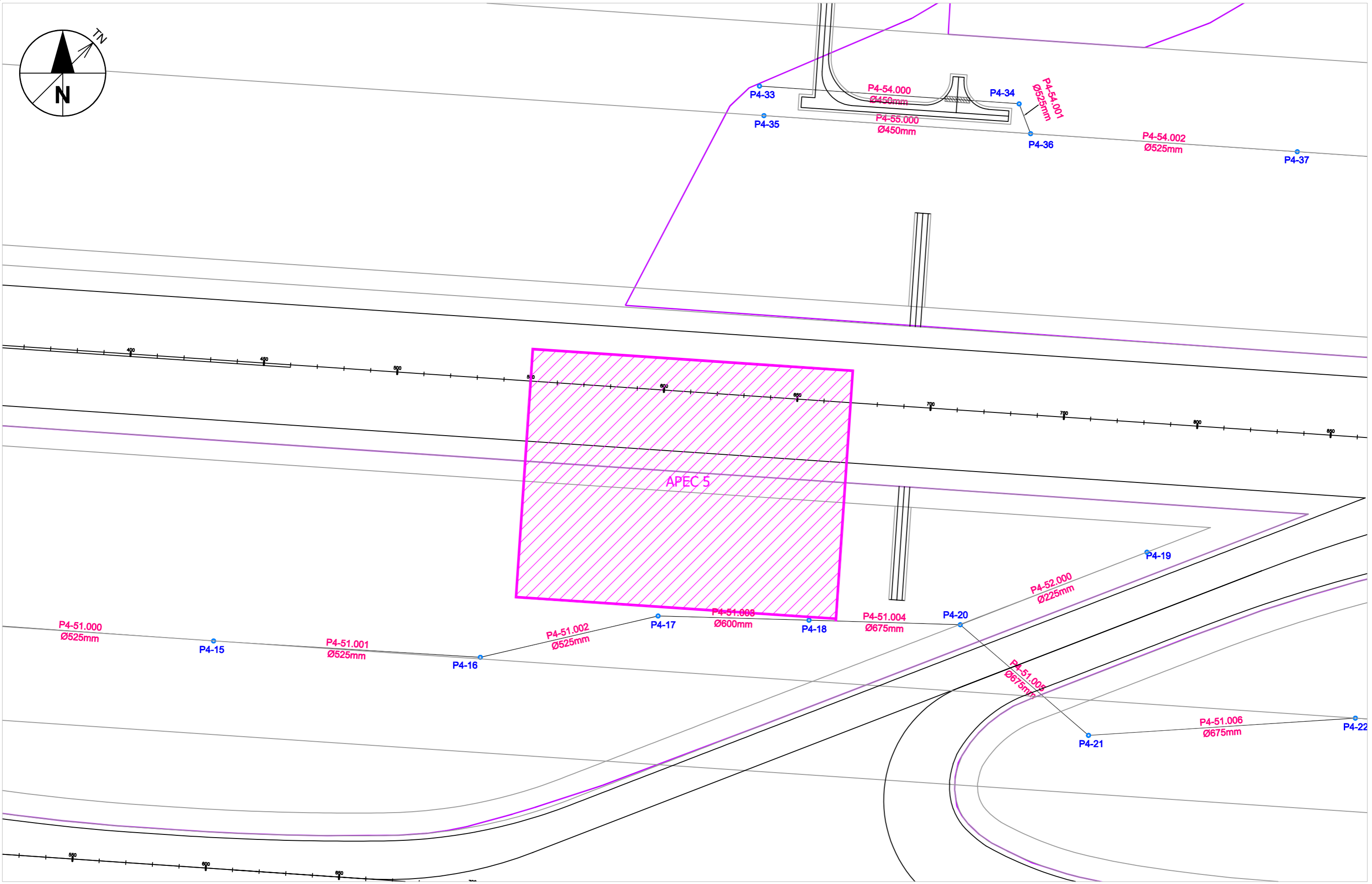
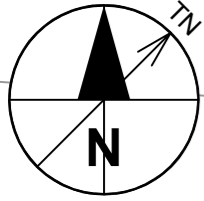
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APPENDIX 10

Location P4 Drain Drawing





REV	DATE	DESCRIPTION	ORIG	CHKD	APPD
0	14/06/21	First Issue	EM		EM

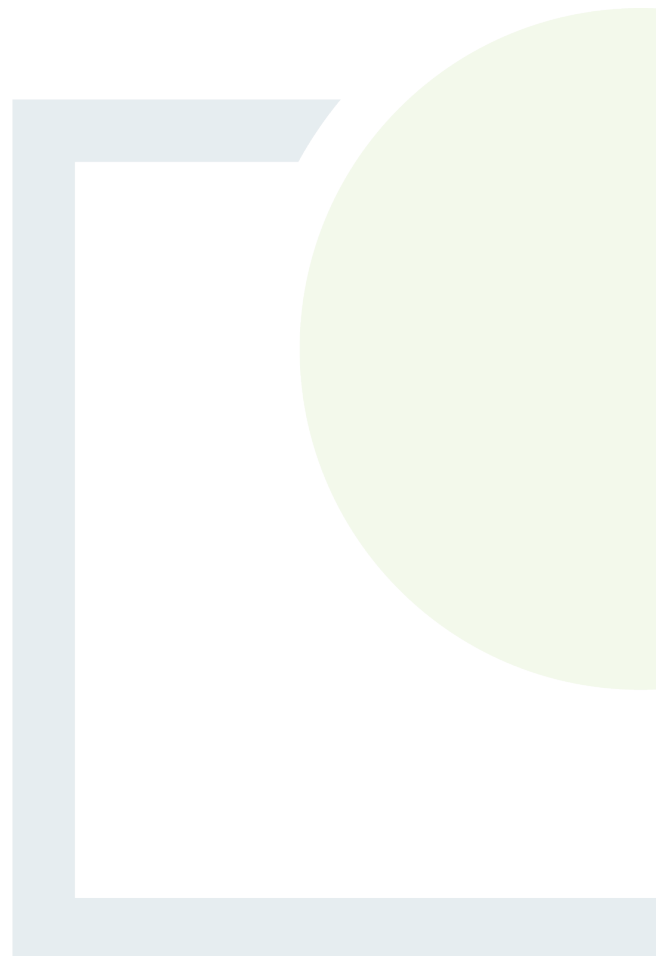


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APPENDIX 11

Construction Works
Certificates of Analysis





CERTIFICATE OF ANALYSIS

Work Order	: PR19B9270	Issue Date	: 15-Nov-2019
Customer	: ALS Life Sciences Ltd	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Rosemary Thomas	Contact	: Client Service
Address	: Carrigeen Business Park Clonmel Co. Tipperary Tipperary Ireland	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: rose.thomas@ALSGlobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: ROAD-556011119	Page	: 1 of 2
Order number	: ----	Date Samples Received	: 06-Nov-2019
		Quote number	: PR2012ALSLI-IE0002 (CZ-200-12-0931_V3)
Site	: ----	Date of test	: 07-Nov-2019 - 15-Nov-2019
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

All results highlighted in Bold indicate a reading above the Limit of Reporting (LOR) only for that test, and are not compared with any parametric value.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories

Zdeněk Jiráček

Position

Environmental Business Unit
Manager





Analytical Results

Sub-Matrix: SOIL				Client sample ID	3739585	3739587	----		
				Laboratory sample ID	Sample 1 S1	Sample 2 S2	----		
				Client sampling date / time	24-Oct-2019 00:00	24-Oct-2019 00:00	----		
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Perfluorinated Compounds									
Perfluorooctanoic acid (PFOA)	S-PFCLMS02	0.000500	mg/kg DW	<0.000500	---	<0.000500	---	----	----
Perfluorooctane sulfonic acid (PFOS)	S-PFCLMS02	0.000500	mg/kg DW	<0.000500	---	<0.000500	---	----	----
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	99.7	± 6.0%	99.7	± 6.0%	----	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
<i>Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00</i>	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PFCLMS02	CZ_SOP_D06_03_197.B (DIN 38414-14) Determination of perfluorinated and brominated compounds by liquid chromatography with MS/MS detection.
Preparation Methods	Method Descriptions
<i>Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00</i>	
*S-PPHOM4	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).

A `` symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.

The calculation methods of summation parameters are available on request in the client service.



CERTIFICATE OF ANALYSIS

Work Order	: PR1984013	Issue Date	: 07-Nov-2019
Amendment	: 1		
Customer	: ALS Life Sciences Ltd	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Rosemary Thomas	Contact	: Client Service
Address	: Carrigeen Business Park Clonmel Co. Tipperary Tipperary Ireland	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: rose.thomas@ALSGlobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: ROAD-419120819	Page	: 1 of 2
Order number	: ----	Date Samples	: 14-Aug-2019
		Received	
		Quote number	: PR2012ALSLI-IE0002 (CZ-200-12-0931_V3)
Site	: ----	Date of test	: 15-Aug-2019 - 04-Nov-2019
Sampled by	: Client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Amendment 1: This test report contains corrected results of W-PFCLMS02 due to laboratory error. This report Amendment 1 replaces the test report issued on 21.8.2019.

All results highlighted in Bold indicate a reading above the Limit of Reporting (LOR) only for that test, and are not compared with any parametric value.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories

Zdeněk Jiráček

Position

Environmental Business Unit
Manager





Analytical Results

Sub-Matrix: SOIL				Client sample ID					
				3628451 Rock- APEC 5 @Soil Surface- Ch 760		3628452 Rock- APEC 5 Bedrock @ 0.2m Ch 690		3628453 Soil Sample 1 - APEC 5 Replicate 1 - CH. 760	
				PR1984013-001		PR1984013-002		PR1984013-003	
				[14-Aug-2019]		[14-Aug-2019]		[14-Aug-2019]	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Perfluorinated Compounds									
Perfluorooctanoic acid (PFOA)	S-PFCLMS02	0.000500	mg/kg DW	<0.000500	----	<0.000500	----	<0.000500	----
Perfluorooctane sulfonic acid (PFOS)	S-PFCLMS02	0.000500	mg/kg DW	0.00313	± 30.0%	0.00332	± 30.0%	0.00214	± 30.0%
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	99.1	± 6.0%	99.5	± 6.0%	90.0	± 6.0%

Sub-Matrix: WATER				Client sample ID					
				3628454 Surface Water - APEC 5 Pre Works - SW1		3628455 Surface Water - APEC 5 Post Works - SW2		3628456 Groundwater (perched)- APEC 5 GW1	
				PR1984013-004		PR1984013-005		PR1984013-006	
				[14-Aug-2019]		[14-Aug-2019]		[14-Aug-2019]	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Perfluorinated Compounds									
Perfluorooctanoic acid (PFOA)	W-PFCLMS02	0.0100	µg/L	0.0192	± 30.0%	<0.0100	----	0.324	± 30.0%
Perfluorooctane sulfonic acid (PFOS)	W-PFCLMS02	0.0100	µg/L	0.0160	± 30.0%	0.0130	± 30.0%	0.816	± 30.0%
Physical Parameters									
pH Value	W-PH-PCT	1.00	-	7.85	± 1.0%	7.75	± 1.0%	7.59	± 1.0%

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PFCLMS02	CZ_SOP_D06_03_197.B (DIN 38414-14) Determination of perfluorinated and brominated compounds by liquid chromatography with MS/MS detection.
W-PFCLMS02	CZ_SOP_D06_03_197.A (US EPA 537, CSN P CEN/TS 15968) Determination of perfluorinated and brominated compounds by liquid chromatography with MS/MS detection.
W-PH-PCT	CZ_SOP_D06_02_105 (ČSN ISO 10523, US EPA 150.1, ČSN EN 16192, SM 4500-H+ B) Determination of pH by potentiometry
Preparation Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
*S-PPHOM4	CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).

A `` symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.

The calculation methods of summation parameters are available on request in the client service.

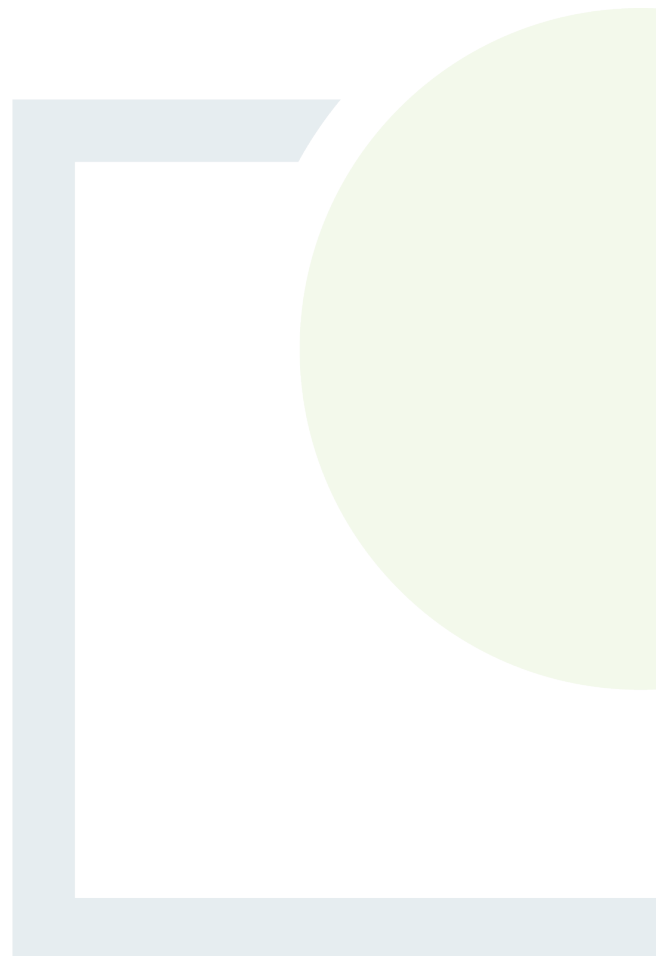


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& PLANNING**

APPENDIX 12

Borehole Logs





Project No.
17-1033

Project Name: Dublin Airport Firestation

Client: Road Bridge

Client's Rep:

Borehole ID
GW04

Method Rotary Openhole	Plant Used Comacchio 205	Top (m) 0.00	Base (m) 10.00	Coordinates 314687.66 E 244329.63 N	Final Depth: 10.00 m	Start Date: 12/10/2017	Driller: JC	Sheet 1 of 2 Scale: 1:40
					Elevation: 70.34 mOD	End Date: 12/10/2017	Logger: CH	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					69.44	0.90		Firm brown sandy CLAY (Driller's description)		
								Firm to stiff brown gravelly CLAY with cobbles and boulders. (Driller's description)		
		Water strike at 2.0m			68.34	2.00		ROCK (Driller's description)	▼	

Water Strikes				Remarks							
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	Borehole previously numbered GW01. Corrected to GW04 in December 2020. 1m x1m concreted plinth installed around headworks.							
2.00	2.00										
Casing Details				Water Added							
To (m)	Diam (mm)	From (m)	To (m)								
				Core Barrel	Flush Type	Termination Reason			Last Updated		
						Terminated at scheduled depth.			09/12/2020		



Method Rotary Openhole	Plant Used Comacchio 205	Top (m) 0.00	Base (m) 10.00	Coordinates 314687.66 E 244329.63 N	Final Depth: 10.00 m	Start Date: 12/10/2017	Driller: JC	Sheet 2 of 2 Scale: 1:40
					Elevation: 70.34 mOD	End Date: 12/10/2017	Logger: CH	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					60.34	10.00		ROCK (Driller's description)		
								End of Borehole at 10.00m		

Water Strikes				Remarks						
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	Borehole previously numbered GW01. Corrected to GW04 in December 2020. 1m x1m concreted plinth installed around headworks.						
2.00	2.00									
Casing Details		Water Added								
To (m)	Diam (mm)	From (m)	To (m)							
				Core Barrel	Flush Type	Termination Reason	Last Updated			
						Terminated at scheduled depth.	09/12/2020			



Project No.
17-1033

Project Name: Dublin Airport Firestation

Borehole ID
GW05

Client: Road Bridge

Client's Rep:

Method Rotary Openhole	Plant Used Comacchio 205	Top (m) 0.00	Base (m) 10.00	Coordinates 314627.63 E 244258.81 N	Final Depth: 10.00 m	Start Date: 12/10/2017	Driller: JC	Sheet 1 of 2 Scale: 1:40
					Elevation: 70.59 mOD	End Date: 12/10/2017	Logger: CH	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					69.09	1.50		Firm to stiff brown sandy gravelly CLAY (Driller's description)		
		Water strike at 1.70m						ROCK (Driller's description)		

Water Strikes				Remarks							
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	Borehole previously numbered GW01. Corrected to GW05 in December 2020. 1m x 1m concrete plinth installed around headworks.							
1.70	1.70										
Casing Details				Water Added							
To (m)	Diam (mm)	From (m)	To (m)								
				Core Barrel	Flush Type	Termination Reason			Last Updated		
						Terminated at scheduled depth.			09/12/2020		



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Project No.
17-1033

Project Name: Dublin Airport Firestation

Client: Road Bridge

Client's Rep:

Borehole ID
GW05

Method Rotary Openhole	Plant Used Comacchio 205	Top (m) 0.00	Base (m) 10.00	Coordinates 314627.63 E 244258.81 N	Final Depth: 10.00 m	Start Date: 12/10/2017	Driller: JC	Sheet 2 of 2 Scale: 1:40
					Elevation: 70.59 mOD	End Date: 12/10/2017	Logger: CH	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					60.59	10.00		ROCK (Driller's description)		
								End of Borehole at 10.00m		

Water Strikes				Remarks						
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	Borehole previously numbered GW01. Corrected to GW05 in December 2020. 1m x 1m concrete plinth installed around headworks.						
1.70	1.70									
Casing Details		Water Added								
To (m)	Diam (mm)	From (m)	To (m)							
				Core Barrel	Flush Type	Termination Reason	Last Updated			
						Terminated at scheduled depth.	09/12/2020			



Project No.
17-1033

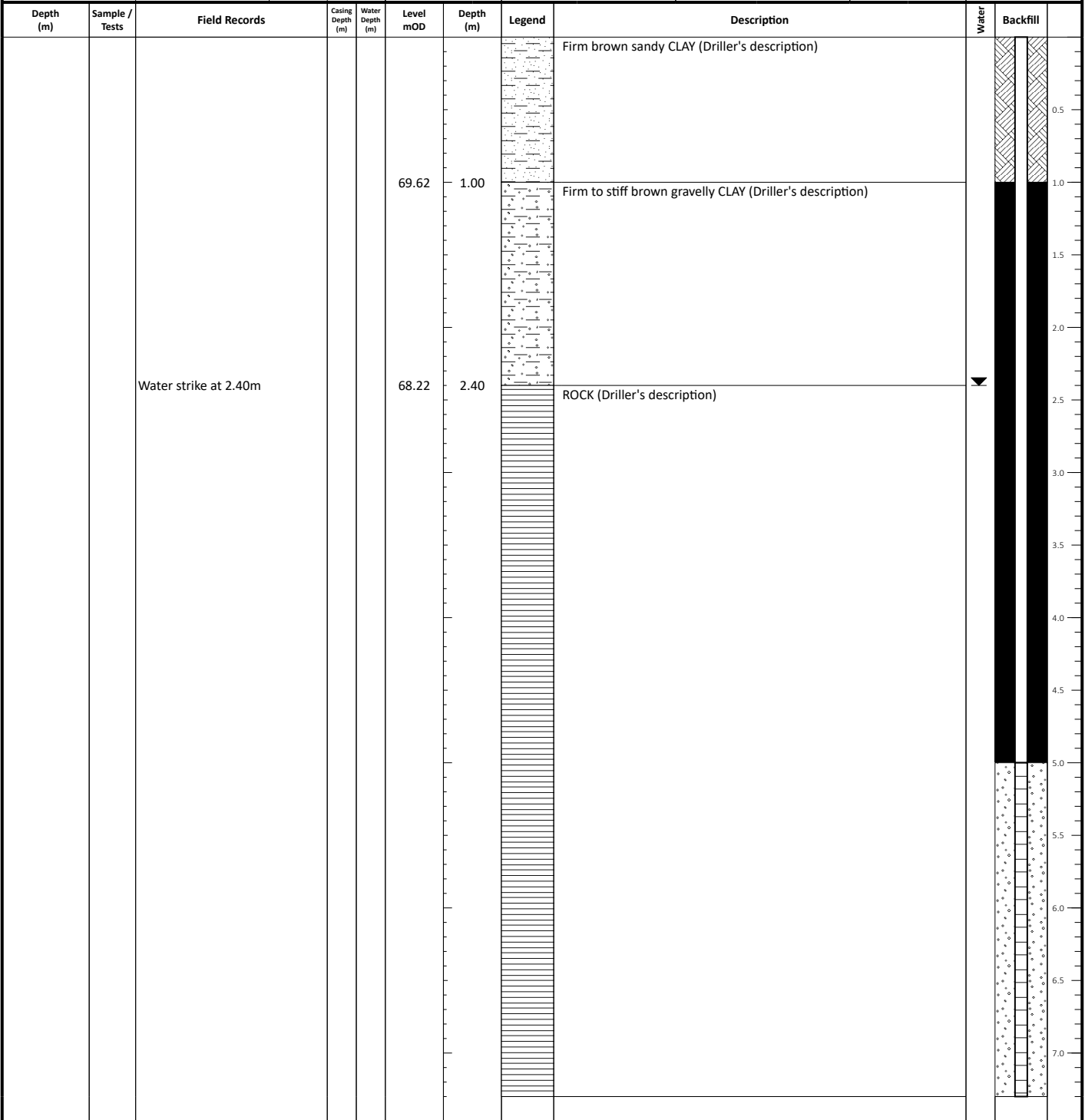
Project Name: Dublin Airport Firestation

Client: Road Bridge

Client's Rep:

Borehole ID
GW06

Method Rotary Openhole	Plant Used Comacchio 205	Top (m) 0.00	Base (m) 10.00	Coordinates 314628.03 E 244338.19 N	Final Depth: 10.00 m	Start Date: 12/10/2017	Driller: JC	Sheet 1 of 2 Scale: 1:40
					Elevation: 70.62 mOD	End Date: 12/10/2017	Logger: CH	



Water Strikes				Remarks							
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	Borehole previously numbered GW01. Corrected to GW06 in December 2020. 1m x 1m concreted plinth installed around headworks							
2.40	2.40										
Casing Details				Water Added							
To (m)	Diam (mm)	From (m)	To (m)								
				Core Barrel	Flush Type	Termination Reason			Last Updated		
						Terminated at scheduled depth.			09/12/2020		



Project No.
17-1033

Project Name: Dublin Airport Firestation

Client: Road Bridge

Client's Rep:

Borehole ID
GW06

Method Rotary Openhole	Plant Used Comacchio 205	Top (m) 0.00	Base (m) 10.00	Coordinates 314628.03 E 244338.19 N	Final Depth: 10.00 m	Start Date: 12/10/2017	Driller: JC	Sheet 2 of 2 Scale: 1:40
					Elevation: 70.62 mOD	End Date: 12/10/2017	Logger: CH	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					60.62	10.00		ROCK (Driller's description)		
								End of Borehole at 10.00m		

Water Strikes				Remarks						
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	Borehole previously numbered GW01. Corrected to GW06 in December 2020. 1m x 1m concreted plinth installed around headworks						
2.40	2.40									
Casing Details		Water Added								
To (m)	Diam (mm)	From (m)	To (m)							
				Core Barrel	Flush Type	Termination Reason	Last Updated			
						Terminated at scheduled depth.	09/12/2020			



CAUSEWAY
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Project No.: 17-1398	Project Name: Additional Works at Dublin Airport	Borehole No.: BH08
Coordinates: E N	Client: Roadbridge Limited	Sheet 1 of 1
Method Rotary Drilling Rotary Coring	Plant Used Comacchio 205 Comacchio 205	Top 0.00 2.00
Base 2.00 10.00	Client's Representative: Fehily Timoney & Company	Scale: 1:50
Ground Level: mOD	Dates: 18/12/2017 - 19/12/2017	Driller: JC
		Logger: MFG+LN

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
							(0.20)		TOPSOIL		
							0.20		Firm brown CLAY (Driller's description)		
							(0.40)				
							0.60		Firm brown slightly sandy slightly gravelly CLAY (Driller's description)		
							(0.70)				
							1.30		Weathered LIMESTONE recovered as dark grey angular gravel (Driller's description)		
							(0.70)				
							2.00		Weak thinly bedded grey and dark grey argillaceous LIMESTONE interbedded with weak black carbonaceous MUDSTONE, with 2 to 20mm white fossil fragments throughout. Partially weathered with slightly reduced strength in parts. Discontinuities: 1. 0 to 20 degree bedding fractures, typically closely spaced, (20/150/370) planar, smooth.		
3.00	100	89	66	12							
				2							
	100	100	77	11							
				3							
4.00				5							
	95	95	95	2							
5.00											
	100	100	80	5							
6.00							(8.00)				
	100	100	85	2							
7.00				3							
	100	100	96								
7.90				1							
	100	100	98								
8.80				5							
	100	100	85	2							
9.80				4							
	100	100	100								
10.00	TCR	SCR	RQD	FI			10.00		End of Borehole at 10.00m		

Remarks	Core Barrel	Water Strikes				Chiselling Details		
	T2-101	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hr:mm)
	Flush Type	Water Added		Casing Details				
	Polymer	From (m)	To (m)	To (m)	Diam (mm)			
				2.00	150			



CAUSEWAY
GEOTECH

Project No.: 17-1398	Project Name: Additional Works at Dublin Airport	Borehole No.: BH09
Coordinates: E N	Client: Roadbridge Limited	Sheet 1 of 2
Method Rotary Drilling Rotary Coring	Plant Used Comacchio 205 Comacchio 205	Top 0.00 6.00
Base 6.00 10.00	Client's Representative: Fehily Timoney & Company	Scale: 1:50
Ground Level: mOD	Dates: 19/12/2017	Driller: JC
		Logger: MFG+LN

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
							(0.20) 0.20		TOPSOIL		
							(1.40)		Firm brown slightly gravelly CLAY (Driller's description)		
							1.60		Firm to stiff brown slightly gravelly sandy CLAY (Driller's description)		
							(1.40)				
							3.00		Stiff to very stiff dark grey sandy gravelly CLAY (Driller's description)		
							(2.50)				
							5.50		Weathered LIMESTONE with bands of clay recovered as dark grey clayey angular gravel (Driller's description)		
							(0.50)				
7.00	80	54	30	20+			6.00		Weak thinly bedded dark grey and grey argillaceous LIMESTONE interbedded with extremely weak dark grey carbonaceous MUSTONE, with occasional white fossil fragments. Distinctly weathered with further weakening. Discontinuities: 1. 0 to 20 degree bedding fractures closely spaced (10/50/300) undulating, rough. 2. 60 to 80 degree joints, probably closely spaced, undulating, rough,		
				3							
				NI							
				12							
				NI							
				10							
8.30	54	15	8	NI			(3.40)				
				NI							
				AZC L							
				NI							
				20							
9.00	100	33	0	NI			9.40		Weak very thinly bedded dark grey and grey argillaceous LIMESTONE with white 2 to 10mm fossil fragments. Largely unweathered. Discontinuities 1. 0 to 10 degree bedding fractures, closely spaced (80/180/500) planar,		
				NI							
				3			(0.60)				
10.00	TCR	SCR	RQD	FI			10.00				

Remarks	Core Barrel T2-101	Water Strikes				Chiselling Details		
		Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hr:mm)
	5.20	5.20						
	Flush Type Polymer	Water Added		Casing Details				
From (m)		To (m)	To (m)	Diam (mm)				
			6.00	150				



CAUSEWAY
GEOTECH

Project No.: 17-1398				Project Name: Additional Works at Dublin Airport				Borehole No.: BH09			
Coordinates: E				Client: Roadbridge Limited				Sheet 2 of 2			
Method				Client's Representative: Fehily Timoney & Company				Scale: 1:50			
Rotary Drilling		Comacchio 205		Top 0.00		Base 6.00		Driller: JC			
Rotary Coring		Comacchio 205		Top 6.00		Base 10.00		Logger: MFG+LN			
Ground Level: mOD				Dates: 19/12/2017							

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
									<p>Weak very thinly bedded dark grey and grey argillaceous LIMESTONE with white 2 to 10mm fossil fragments. Largely unweathered. Discontinuities</p> <p>1. 0 to 10 degree bedding fractures, closely spaced (80/180/500) planar, smooth.</p> <p style="text-align: center;">End of Borehole at 10.00m</p>		

Remarks	Core Barrel		Water Strikes				Chiselling Details		
	T2-101		Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)
	Flush Type		Water Added		Casing Details				
	Polymer		From (m)	To (m)	To (m)	Diam (mm)			



CAUSEWAY
GEOTECH

Project No.:
17-1398

Project Name:
Additional Works at Dublin Airport

Borehole No.:
BH10

Coordinates:
E
N

Client:
Roadbridge Limited
Client's Representative:
Fehily Timoney & Company

Sheet 1 of 1

Scale: 1:50

Driller: JC

Logger: MFG+LN

Method	Plant Used	Top	Base
Rotary Drilling	Comacchio 205	0.00	3.70
Rotary Coring	Comacchio 205	3.70	9.70

Ground Level:
mOD

Dates:
20/12/2017

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
							(0.20)		TOPSOIL		
							0.20		Firm brown slightly sandy slightly gravelly CLAY (Driller's description)		
							(1.60)				
							1.80		Firm to stiff grey sandy gravelly CLAY (Driller's description)		
							(0.90)				
							2.70		Weathered LIMESTONE recovered as dark grey clayey angular gravel (Driller's description)		
							(1.00)				
4.70	100	55	0	NI			3.70		Weak indistinctly thinly bedded dark grey argillaceous LIMESTONE. Largely unweathered. Discontinuities: 1. 0 to 10 degree bedding fractures, closely spaced (20/100/340) planar, smooth. 2. 70 to 90 degree joints probably medium to widely spaced, planar, smooth, predominately closed, open at 8.10m with 10mm clay fill.		
5.70	100	57	0	NI							
6.70	100	90	28	8			(6.00)				
7.70	100	75	29	4							
8.70	100	95	60	2					7.80 to 8.70m: Fossiliferous bed with 1 to 15mm white fossil fragments.		
9.70	100	92	64	6			9.70		End of Borehole at 9.70m		

Remarks

Core Barrel	Water Strikes				Chiselling Details		
	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hr:mm)
T2-101							
Flush Type	Water Added		Casing Details				
	From (m)	To (m)	To (m)	Diam (mm)			
Polymer			3.70	150			



Ground Investigations Ireland Ltd
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Site
DAA North Runway

Borehole Number
BH102

Machine : Bretta T44
Flush : Air mist
Core Dia: 100 mm
Method : Rotary Cored

Casing Diameter

Ground Level (mOD)
71.89

Client
DAA

Job Number
6025-06-16

Location
314158 E 244088 N

Dates
21/07/2016

Project Contractor
Kilwex

Sheet
1/1

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
2.10	15						(3.20)	Brown gravelly CLAY with occasional cobbles and boulders			
3.60	50					68.69	3.20	Grey LIMESTONE			
5.10	100						(2.80)				
6.00	100					65.89	6.00	Complete at 6.00m			

Remarks



Scale (approx)
1:50


Logged By
ROT

Figure No.
6025-06-16.BH102



Method Rotary Drilling	Plant Used Hanjin D8	Top (m) 0.00	Base (m) 15.00	Coordinates E N	Final Depth: 15.00 m	Start Date: 19/09/2020	Driller: KW	Sheet 1 of 3 Scale: 1:40
					Elevation: mOD	End Date: 20/09/2020	Logger: SR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.20							 TOPSOIL (Driller's description)  Brownish grey slightly gravelly CLAY (Driller's description)			

Water Strikes				Remarks							
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)								
12.00	4.00										
Casing Details				Water Added							
To (m)	Diam (mm)	From (m)	To (m)								
				Core Barrel	Flush Type	Termination Reason	Last Updated				
						Terminated on the instruction of the Client.	02/09/2020				



Method Rotary Drilling	Plant Used Hanjin D8	Top (m) 0.00	Base (m) 15.00	Coordinates E N	Final Depth: 15.00 m	Start Date: 19/09/2020	Driller: KW	Sheet 2 of 3 Scale: 1:40
					Elevation: mOD	End Date: 20/09/2020	Logger: SR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Brownish grey slightly gravelly CLAY (Driller's description)		
		Seepage at 12.00m				12.00		Grey LIMESTONE (Driller's description)		

Water Strikes				Remarks							
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)								
12.00	4.00										
Casing Details		Water Added									
To (m)	Diam (mm)	From (m)	To (m)								
				Core Barrel	Flush Type	Termination Reason	Last Updated				
						Terminated on the instruction of the Client.	02/09/2020				



Project No.
20-0805

Project Name: GW Monitoring Boreholes - Dublin Airport

Borehole ID
GWMP4

Client: DAA

Client's Rep: Roadbridge

Method Rotary Drilling	Plant Used Hanjin D8	Top (m) 0.00	Base (m) 15.00	Coordinates E N	Final Depth: 15.00 m	Start Date: 19/09/2020	Driller: KW	Sheet 3 of 3 Scale: 1:40
					Elevation: mOD	End Date: 20/09/2020	Logger: SR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
						15.00		Grey LIMESTONE (Driller's description)		
								End of Borehole at 15.00m		

Water Strikes				Remarks							
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)								
12.00	4.00										
Casing Details				Water Added							
To (m)	Diam (mm)	From (m)	To (m)								
				Core Barrel	Flush Type	Termination Reason	Last Updated				
						Terminated on the instruction of the Client.	02/09/2020				





Method Rotary Drilling	Plant Used Hanjin D8	Top (m) 0.00	Base (m) 19.50	Coordinates E N	Final Depth: 19.50 m	Start Date: 21/09/2020	Driller: KW	Sheet 1 of 3 Scale: 1:40
					Elevation: mOD	End Date: 21/09/2020	Logger: SR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
						0.20		TOPSOIL (Drill's description)		
								Brown slightly gravelly CLAY (Driller's description)		
		Water strike at 5.00				5.00		Grey sandy clayey GRAVEL (Driller's description)	▼	
						5.80		Brownish grey slightly gravelly CLAY with low cobble content (Driller's description)		

Water Strikes				Remarks							
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)								
5.00	5.00										
17.00	17.00										
Casing Details		Water Added									
To (m)	Diam (mm)	From (m)	To (m)								
				Core Barrel	Flush Type	Termination Reason	Last Updated				
						Terminated on the instruction of the Client.	02/09/2020				



CAUSEWAY
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Project No.
20-0805

Project Name: GW Monitoring Boreholes - Dublin Airport

Borehole ID
GWMP5

Client: DAA

Client's Rep: Roadbridge

Method Rotary Drilling	Plant Used Hanjin D8	Top (m) 0.00	Base (m) 19.50	Coordinates E N	Final Depth: 19.50 m	Start Date: 21/09/2020	Driller: KW	Sheet 2 of 3 Scale: 1:40
					Elevation: mOD	End Date: 21/09/2020	Logger: SR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Brownish grey slightly gravelly CLAY with low cobble content (Driller's description)		
										7.5
										8.0
										8.5
										9.0
										9.5
										10.0
										10.5
										11.0
										11.5
										12.0
										12.5
										13.0
										13.5
										14.0
										14.5

Water Strikes				Remarks							
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)								
5.00	5.00										
17.00	17.00										
Casing Details				Water Added							
To (m)	Diam (mm)	From (m)	To (m)								
				Core Barrel	Flush Type	Termination Reason	Last Updated				
						Terminated on the instruction of the Client.	02/09/2020				



Project No.
20-0805

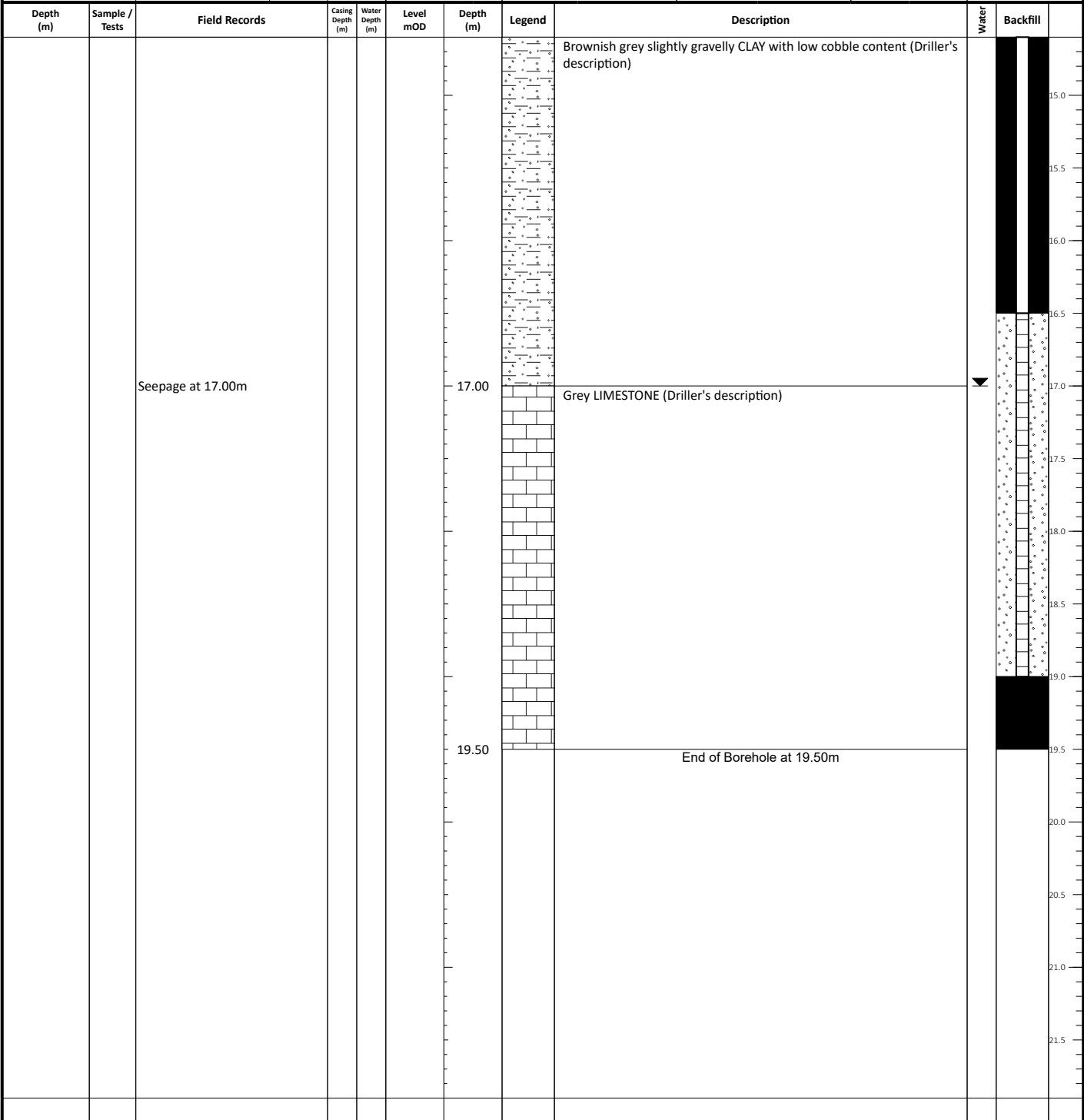
Project Name: GW Monitoring Boreholes - Dublin Airport

Borehole ID
GWMP5

Client: DAA

Client's Rep: Roadbridge

Method Rotary Drilling	Plant Used Hanjin D8	Top (m) 0.00	Base (m) 19.50	Coordinates E N	Final Depth: 19.50 m	Start Date: 21/09/2020	Driller: KW	Sheet 3 of 3 Scale: 1:40
					Elevation: mOD	End Date: 21/09/2020	Logger: SR	FINAL



Water Strikes				Remarks							
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)								
5.00 17.00	5.00 17.00										
Casing Details		Water Added									
To (m)	Diam (mm)	From (m)	To (m)								
				Core Barrel	Flush Type	Termination Reason	Last Updated				
						Terminated on the instruction of the Client.	02/09/2020				

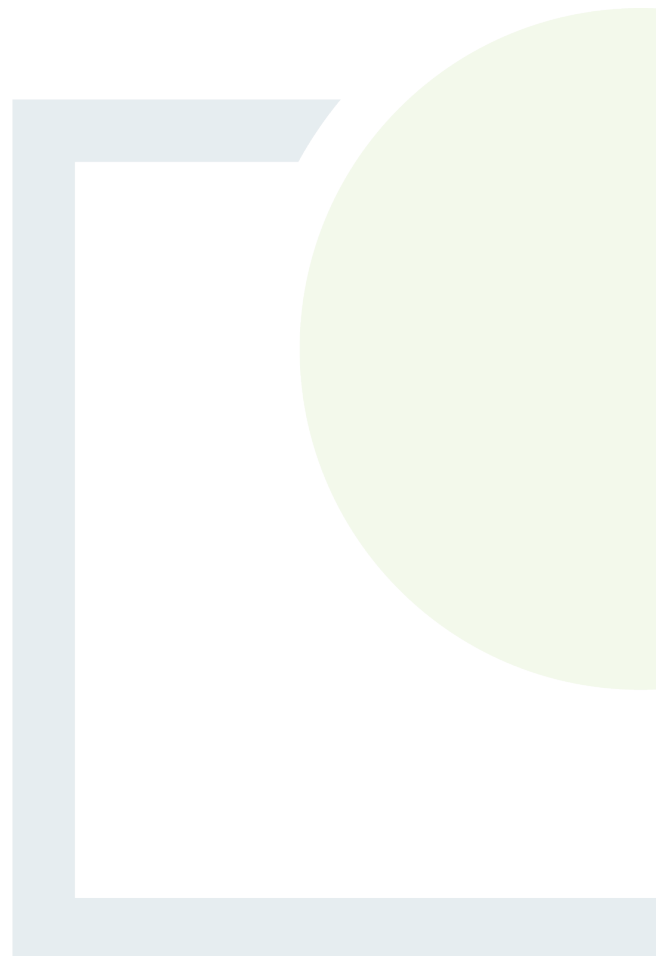


**FEHILY
TIMONEY**

**CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING**

APPENDIX 13

Post-Construction Monitoring
Certificates of Analysis





CERTIFICATE OF ANALYSIS

Work Order	: PR2023713	Issue Date	: 13-Mar-2020
Customer	: ALS Life Sciences Ltd	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Rosemary Thomas	Contact	: Client Service
Address	: Carrigeen Business Park Clonmel Co. Tipperary Tipperary Ireland	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: rose.thomas@ALSGlobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: +353 2143 17982	Telephone	: +420 226 226 228
Project	: ROAD-623040320	Page	: 1 of 2
Order number	: ----	Date Samples Received	: 09-Mar-2020
		Quote number	: PR2012ALSLI-IE0002 (CZ-200-12-0931_V3)
Site	: ----	Date of test	: 10-Mar-2020 - 13-Mar-2020
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

All results highlighted in Bold indicate a reading above the Limit of Reporting (LOR) only for that test, and are not compared with any parametric value.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories

Zdeněk Jiráček

Position

Environmental Business Unit
Manager





Analytical Results

Parameter	Method	LOR	Unit	Client sample ID		Laboratory sample ID		Client sampling date / time			
				3910325 Surface water - R108 - SWML 4	3910326 Surface water - Forest Road - SWML 5	PR2023713-001	PR2023713-002	[09-Mar-2020]	[09-Mar-2020]	Result	MU
Perfluorinated Compounds											
Perfluorooctanoic acid (PFOA)	W-PFCLMS02	0.0100	µg/L	<0.0100	---	0.0237	± 30.0%	----	----		
Perfluorooctane sulfonic acid (PFOS)	W-PFCLMS02	0.0100	µg/L	<0.0100	---	0.0354	± 30.0%	----	----		
Physical Parameters											
pH Value	W-PH-PCT	1.00	-	8.08	± 1.0%	8.13	± 1.0%	----	----		

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
W-PFCLMS02	CZ_SOP_D06_03_197.A (US EPA 537, CSN P CEN/TS 15968) Determination of perfluorinated and brominated compounds by liquid chromatography with MS/MS detection.
W-PH-PCT	CZ_SOP_D06_02_105 (ČSN ISO 10523, US EPA 150.1, ČSN EN 16192, SM 4500-H+ B) Determination of pH by potentiometry

A ``* symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.

The calculation methods of summation parameters are available on request in the client service.



CERTIFICATE OF ANALYSIS

Work Order	: PR2030846	Issue Date	: 31-Mar-2020
Customer	: ALS Life Sciences Ltd	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Rosemary Thomas	Contact	: Client Service
Address	: Carrigeen Business Park Clonmel Co. Tipperary Tipperary Ireland	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: rose.thomas@ALSGlobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: ROAD-425250320	Page	: 1 of 2
Order number	: ----	Date Samples Received	: 27-Mar-2020
		Quote number	: PR2012ALSLI-IE0002 (CZ-200-12-0931_V3)
Site	: ----	Date of test	: 29-Mar-2020 - 31-Mar-2020
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

All results highlighted in Bold indicate a reading above the Limit of Reporting (LOR) only for that test, and are not compared with any parametric value.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories

Zdeněk Jiráček

Position

Environmental Business Unit
Manager





Analytical Results

Sub-Matrix: SURFACE WATER				Client sample ID		3936272 R108 SWML 4		3936273 Forest Road SWML 5		----	
				Laboratory sample ID		PR2030846-001		PR2030846-002		----	
				Client sampling date / time		[27-Mar-2020]		[27-Mar-2020]		----	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU		
Perfluorinated Compounds											
Perfluorooctanoic acid (PFOA)	W-PFCLMS02	0.0100	µg/L	<0.0100	---	<0.0100	---	----	----		
Perfluorooctane sulfonic acid (PFOS)	W-PFCLMS02	0.0100	µg/L	<0.0100	---	<0.0100	---	----	----		
Physical Parameters											
pH Value	W-PH-PCT	1.00	-	7.96	± 1.0%	7.88	± 1.0%	----	----		

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor $k = 2$, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
W-PFCLMS02	CZ_SOP_D06_03_197.A (US EPA 537, CSN P CEN/TS 15968) Determination of perfluorinated and brominated compounds by liquid chromatography with MS/MS detection.
W-PH-PCT	CZ_SOP_D06_02_105 (ČSN ISO 10523, US EPA 150.1, ČSN EN 16192, SM 4500-H+ B) Determination of pH by potentiometry

A ``* symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.

The calculation methods of summation parameters are available on request in the client service.



ALS Environmental Ltd

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www.alsenvironmental.co.uk

Mr O'Sullivan
ALS Life Sciences (Ireland)
Lismard Business Park
Timahoe Road
Portlaoise Laois

28th July 2020

Test Report: WAK/1891352/2020

Dear Mr O'Sullivan

Analysis of your sample(s) received on 06 July 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

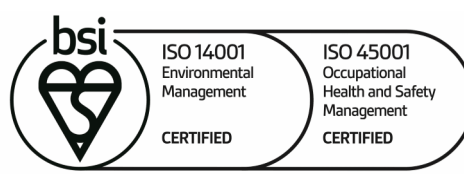
Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: C. Ulph

Title: Micro/Crypto/Logistics Manager



Report Summary

ANALYSED BY

Mr Thomas O'Sullivan
ALS Life Sciences (Ireland)
Lismard Business Park
Timahoe Road
Portlaoise
Laois



Date of Issue: **24 July 2020**

Report Number: **WAK/1891352/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: ROAD-310020720

Number of Samples
included in this report **3**

Job Received: **06 July 2020**

Number of Test Results
included in this report **51**

Analysis Commenced: **24 July 2020**

Signed:

Name: **C. Ulph**

Date: **24 July 2020**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Page 1 of 10

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1891352/2020**
Laboratory Number: **19451467**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4055537 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **30 June 2020**
Sample Received: **06 July 2020**
Analysis Complete: **24 July 2020**

Issue **1**
Sample **1** of **3**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	16.9	ng/l	24/07/2020	Y S	SUBCON
Branched PFOS	3.94	ng/l	24/07/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	7	ng/l	24/07/2020	Y S	SUBCON
PFBA (357-22-4)	142	ng/l	24/07/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	24/07/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	24/07/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	24/07/2020	Y S	SUBCON
PFHpA (375-85-9)	11.1	ng/l	24/07/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	24/07/2020	Y S	SUBCON
PFHxA (307-24-4)	26.9	ng/l	24/07/2020	Y S	SUBCON
PFHxS (355-46-4)	2.21	ng/l	24/07/2020	Y S	SUBCON
PFNA (375-95-1)	1.82	ng/l	24/07/2020	Y S	SUBCON
PFOA (335-67-1)	6.86	ng/l	24/07/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	24/07/2020	Y S	SUBCON
PFFPA (2706-90-3)	39	ng/l	24/07/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	24/07/2020	Y S	SUBCON
Total PFOS	10.9	ng/l	24/07/2020	Y S	SUBCON

Analyst Comments for 19451467:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Tel:+44 (0)1924 818100 Fax:+44 (0)1924 818101

Signed:



Name: **C. Ulph**

Date: **24 July 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1891352/2020**
Laboratory Number: **19451468**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4055538 SWML 5 (a)**
Sample Matrix: **Surface Water**
Sample Date/Time: **30 June 2020**
Sample Received: **06 July 2020**
Analysis Complete: **24 July 2020**

Issue **1**
Sample **2** of **3**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	13.8	ng/l	24/07/2020	Y S	SUBCON
Branched PFOS	15.9	ng/l	24/07/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	11.2	ng/l	24/07/2020	Y S	SUBCON
PFBA (357-22-4)	152	ng/l	24/07/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	24/07/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	24/07/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	24/07/2020	Y S	SUBCON
PFHpA (375-85-9)	10.5	ng/l	24/07/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	24/07/2020	Y S	SUBCON
PFHxA (307-24-4)	25.3	ng/l	24/07/2020	Y S	SUBCON
PFHxS (355-46-4)	2.95	ng/l	24/07/2020	Y S	SUBCON
PFNA (375-95-1)	1.68	ng/l	24/07/2020	Y S	SUBCON
PFOA (335-67-1)	5.92	ng/l	24/07/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	24/07/2020	Y S	SUBCON
PFPA (2706-90-3)	64	ng/l	24/07/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	24/07/2020	Y S	SUBCON
Total PFOS	15.9	ng/l	24/07/2020	Y S	SUBCON

Analyst Comments for 19451468:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 4 of 10

Signed:



Name: **C. Ulph**

Date: **24 July 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1891352/2020**
Laboratory Number: **19451469**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4055539 SWML 5 (b)**
Sample Matrix: **Surface Water**
Sample Date/Time: **30 June 2020**
Sample Received: **06 July 2020**
Analysis Complete: **24 July 2020**

Issue **1**
Sample **3** of **3**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	5.27	ng/l	24/07/2020	Y S	SUBCON
Branched PFOS	3.23	ng/l	24/07/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	5.85	ng/l	24/07/2020	Y S	SUBCON
PFBA (357-22-4)	360	ng/l	24/07/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	24/07/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	24/07/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	24/07/2020	Y S	SUBCON
PFHpA (375-85-9)	5.3	ng/l	24/07/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	24/07/2020	Y S	SUBCON
PFHxA (307-24-4)	11	ng/l	24/07/2020	Y S	SUBCON
PFHxS (355-46-4)	1.99	ng/l	24/07/2020	Y S	SUBCON
PFNA (375-95-1)	1.52	ng/l	24/07/2020	Y S	SUBCON
PFOA (335-67-1)	4.12	ng/l	24/07/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	24/07/2020	Y S	SUBCON
PFPA (2706-90-3)	262	ng/l	24/07/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	24/07/2020	Y S	SUBCON
Total PFOS	9.08	ng/l	24/07/2020	Y S	SUBCON

Analyst Comments for 19451469:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

Unit 11, Silkwood Park, Janes Hill, Off Albert Drive, Wakefield, WF5 9TG
Tel:+44 (0)1924 818100 Fax:+44 (0)1924 818101

Signed:



Name: **C. Ulph**

Date: **24 July 2020**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/1891352/2020

Issue 1

This issue replaces all previous issues

Date of Issue: **24 July 2020**

Sample No	Analysis Comments
19451467	
19451468	
19451469	

Signed: 

Name: **C. Ulph**

Date: **24 July 2020**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/1891352/2020

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 24 July 2020

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 24 July 2020
	Title: Micro/Crypto/Logistics Manager	

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ALS Environmental Ltd

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www.alsenvironmental.co.uk

Mr O'Sullivan
ALS Life Sciences (Ireland)
Lismard Business Park
Timahoe Road
Portlaoise Laois

10 August 2020

Test Report: COV/1898302/2020

Dear Mr O'Sullivan

Analysis of your sample(s) received on 20 July 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

D. Lewis

Title:

Technical Inorganic Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Mr Thomas O'Sullivan
ALS Life Sciences (Ireland)
Lismard Business Park
Timahoe Road
Portlaoise
Laois



Date of Issue: **10 August 2020**

Report Number: **COV/1898302/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: ROAD-474170720

Number of Samples
included in this report **6**

Job Received: **20 July 2020**

Number of Test Results
included in this report **102**

Analysis Commenced: **10 August 2020**

Signed:

Name: **D. Lewis**

Date: **10 August 2020**

Title: **Technical Inorganic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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ALS Environmental Ltd

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Page 1 of 16

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1898302/2020**
Laboratory Number: **19499776**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4076588 R108 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **10 July 2020**
Sample Received: **20 July 2020**
Analysis Complete: **10 August 2020**

Issue **1**
Sample **1** of **6**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	32.9	ng/l	10/08/2020	Y S	SUBCON
Branched PFOS	4.13	ng/l	10/08/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	4.48	ng/l	10/08/2020	Y S	SUBCON
PFBA (357-22-4)	30	ng/l	10/08/2020	Y S	SUBCON
PFBS (375-73-5)	1.25	ng/l	10/08/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/08/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHpA (375-85-9)	24	ng/l	10/08/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHxA (307-24-4)	49.2	ng/l	10/08/2020	Y S	SUBCON
PFHxS (355-46-4)	5.8	ng/l	10/08/2020	Y S	SUBCON
PFNA (375-95-1)	2.12	ng/l	10/08/2020	Y S	SUBCON
PFOA (335-67-1)	7.86	ng/l	10/08/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/08/2020	Y S	SUBCON
PFPA (2706-90-3)	73	ng/l	10/08/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/08/2020	Y S	SUBCON
Total PFOS	8.61	ng/l	10/08/2020	Y S	SUBCON

Analyst Comments for 19499776:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **D. Lewis**

Date: **10 August 2020**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1898302/2020**
Laboratory Number: **19499777**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4076589 R108 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 July 2020**
Sample Received: **20 July 2020**
Analysis Complete: **10 August 2020**

Issue **1**
Sample **2** of **6**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	37	ng/l	10/08/2020	Y S	SUBCON
Branched PFOS	3.74	ng/l	10/08/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	4	ng/l	10/08/2020	Y S	SUBCON
PFBA (357-22-4)	24.1	ng/l	10/08/2020	Y S	SUBCON
PFBS (375-73-5)	1.16	ng/l	10/08/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/08/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHpA (375-85-9)	19	ng/l	10/08/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHxA (307-24-4)	42.1	ng/l	10/08/2020	Y S	SUBCON
PFHxS (355-46-4)	5.21	ng/l	10/08/2020	Y S	SUBCON
PFNA (375-95-1)	1.71	ng/l	10/08/2020	Y S	SUBCON
PFOA (335-67-1)	6.7	ng/l	10/08/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/08/2020	Y S	SUBCON
PFPA (2706-90-3)	65.3	ng/l	10/08/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/08/2020	Y S	SUBCON
Total PFOS	7.74	ng/l	10/08/2020	Y S	SUBCON

Analyst Comments for 19499777:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **10 August 2020**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1898302/2020**
Laboratory Number: **19499778**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4076590 Forest Road SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **10 July 2020**
Sample Received: **20 July 2020**
Analysis Complete: **10 August 2020**

Issue **1**
Sample **3** of **6**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	38	ng/l	10/08/2020	Y S	SUBCON
Branched PFOS	3.72	ng/l	10/08/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	4.21	ng/l	10/08/2020	Y S	SUBCON
PFBA (357-22-4)	31.1	ng/l	10/08/2020	Y S	SUBCON
PFBS (375-73-5)	1.07	ng/l	10/08/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/08/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHpA (375-85-9)	22.8	ng/l	10/08/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHxA (307-24-4)	45.3	ng/l	10/08/2020	Y S	SUBCON
PFHxS (355-46-4)	5.76	ng/l	10/08/2020	Y S	SUBCON
PFNA (375-95-1)	2.23	ng/l	10/08/2020	Y S	SUBCON
PFOA (335-67-1)	7.26	ng/l	10/08/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/08/2020	Y S	SUBCON
PFPA (2706-90-3)	63.4	ng/l	10/08/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/08/2020	Y S	SUBCON
Total PFOS	7.93	ng/l	10/08/2020	Y S	SUBCON

Analyst Comments for 19499778:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **10 August 2020**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1898302/2020**
Laboratory Number: **19499779**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4076592 Forest Road SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 July 2020**
Sample Received: **20 July 2020**
Analysis Complete: **10 August 2020**

Issue **1**
Sample **4** of **6**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	35.7	ng/l	10/08/2020	Y S	SUBCON
Branched PFOS	3.48	ng/l	10/08/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	3.68	ng/l	10/08/2020	Y S	SUBCON
PFBA (357-22-4)	30.7	ng/l	10/08/2020	Y S	SUBCON
PFBS (375-73-5)	1.19	ng/l	10/08/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/08/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHpA (375-85-9)	20.2	ng/l	10/08/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHxA (307-24-4)	38.3	ng/l	10/08/2020	Y S	SUBCON
PFHxS (355-46-4)	5.08	ng/l	10/08/2020	Y S	SUBCON
PFNA (375-95-1)	1.8	ng/l	10/08/2020	Y S	SUBCON
PFOA (335-67-1)	7.36	ng/l	10/08/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/08/2020	Y S	SUBCON
PFPA (2706-90-3)	55.4	ng/l	10/08/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/08/2020	Y S	SUBCON
Total PFOS	7.15	ng/l	10/08/2020	Y S	SUBCON

Analyst Comments for 19499779:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **10 August 2020**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1898302/2020**
Laboratory Number: **19499780**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4076593 Forest Road SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **10 July 2020**
Sample Received: **20 July 2020**
Analysis Complete: **10 August 2020**

Issue **1**
Sample **5** of **6**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	25.2	ng/l	10/08/2020	Y S	SUBCON
Branched PFOS	2.21	ng/l	10/08/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	3.25	ng/l	10/08/2020	Y S	SUBCON
PFBA (357-22-4)	33	ng/l	10/08/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	10/08/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/08/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHpA (375-85-9)	14.1	ng/l	10/08/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHxA (307-24-4)	19.7	ng/l	10/08/2020	Y S	SUBCON
PFHxS (355-46-4)	2.22	ng/l	10/08/2020	Y S	SUBCON
PFNA (375-95-1)	1.67	ng/l	10/08/2020	Y S	SUBCON
PFOA (335-67-1)	4.96	ng/l	10/08/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/08/2020	Y S	SUBCON
PFPA (2706-90-3)	28.3	ng/l	10/08/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/08/2020	Y S	SUBCON
Total PFOS	5.46	ng/l	10/08/2020	Y S	SUBCON

Analyst Comments for 19499780:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **D. Lewis**

Date: **10 August 2020**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1898302/2020**
Laboratory Number: **19499781**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4076593 Forest Road SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 July 2020**
Sample Received: **20 July 2020**
Analysis Complete: **10 August 2020**

Issue **1**
Sample **6** of **6**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	30.1	ng/l	10/08/2020	Y S	SUBCON
Branched PFOS	2.81	ng/l	10/08/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	3.25	ng/l	10/08/2020	Y S	SUBCON
PFBA (357-22-4)	40	ng/l	10/08/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	10/08/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/08/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHpA (375-85-9)	16.3	ng/l	10/08/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/08/2020	Y S	SUBCON
PFHxA (307-24-4)	23	ng/l	10/08/2020	Y S	SUBCON
PFHxS (355-46-4)	2.51	ng/l	10/08/2020	Y S	SUBCON
PFNA (375-95-1)	1.9	ng/l	10/08/2020	Y S	SUBCON
PFOA (335-67-1)	5.58	ng/l	10/08/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/08/2020	Y S	SUBCON
PFPA (2706-90-3)	31.4	ng/l	10/08/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/08/2020	Y S	SUBCON
Total PFOS	6.06	ng/l	10/08/2020	Y S	SUBCON

Analyst Comments for 19499781:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **10 August 2020**

Title: **Technical Inorganic Manager**



ANALYST COMMENTS FOR REPORT COV/1898302/2020

Issue 1

This issue replaces
all previous issues

Date of Issue: **10 August 2020**

Sample No	Analysis Comments
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19499776

19499777

19499778

19499779

19499780

19499781

Signed: *D. Lewis*

Name: **D. Lewis**

Date: **10 August 2020**

Title: **Technical Inorganic Manager**




DETERMINAND COMMENTS FOR REPORT COV/1898302/2020

Date of Issue: 10 August 2020

ISSUE 1

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: D. Lewis	Date: 10 August 2020
	Title: Technical Inorganic Manager	

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ALS Environmental Ltd

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www.alsenvironmental.co.uk

Mr O'Sullivan
ALS Life Sciences (Ireland)
Lismard Business Park
Timahoe Road
Portlaoise Laois

20 August 2020

Test Report: COV/1904093/2020

Dear Mr O'Sullivan

Analysis of your sample(s) received on 31 July 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

D. Lewis

Title:

Technical Inorganic Manager



EMS 675527

OHS 542058



Report Summary

ANALYSED BY

Mr Thomas O'Sullivan
ALS Life Sciences (Ireland)
Lismard Business Park
Timahoe Road
Portlaoise
Laois



Date of Issue: **20 August 2020**

Report Number: **COV/1904093/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: ROAD-251300720

Number of Samples
included in this report **3**

Job Received: **31 July 2020**

Number of Test Results
included in this report **51**

Analysis Commenced: **20 August 2020**

Signed:

Name: **D. Lewis**

Date: **20 August 2020**

Title: **Technical Inorganic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 10

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1904093/2020**
Laboratory Number: **19542029**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4090954 Surface Water R108 SWML4**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 July 2020**
Sample Received: **31 July 2020**
Analysis Complete: **20 August 2020**

Issue **1**
Sample **1** of **3**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	506	ng/l	20/08/2020	Y S	SUBCON
Branched PFOS	46	ng/l	20/08/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	88.9	ng/l	20/08/2020	Y S	SUBCON
PFBA (357-22-4)	<34	ng/l	20/08/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/08/2020	Y S	SUBCON
PFDA (335-76-2)	1.5	ng/l	20/08/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/08/2020	Y S	SUBCON
PFHpA (375-85-9)	51	ng/l	20/08/2020	Y S	SUBCON
PFHpS (375-92-8)	2.82	ng/l	20/08/2020	Y S	SUBCON
PFHxA (307-24-4)	78.9	ng/l	20/08/2020	Y S	SUBCON
PFHxS (355-46-4)	18.3	ng/l	20/08/2020	Y S	SUBCON
PFNA (375-95-1)	12.4	ng/l	20/08/2020	Y S	SUBCON
PFOA (335-67-1)	40.5	ng/l	20/08/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/08/2020	Y S	SUBCON
PFPA (2706-90-3)	70.4	ng/l	20/08/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/08/2020	Y S	SUBCON
Total PFOS	135	ng/l	20/08/2020	Y S	SUBCON

Analyst Comments for 19542029:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **20 August 2020**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1904093/2020**
Laboratory Number: **19542030**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4090955 Surface Water Forest Road SWML5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 July 2020**
Sample Received: **31 July 2020**
Analysis Complete: **20 August 2020**

Issue **1**
Sample **2** of **3**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	364	ng/l	20/08/2020	Y S	SUBCON
Branched PFOS	26.3	ng/l	20/08/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	49.5	ng/l	20/08/2020	Y S	SUBCON
PFBA (357-22-4)	<30	ng/l	20/08/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/08/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/08/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/08/2020	Y S	SUBCON
PFHpA (375-85-9)	31.8	ng/l	20/08/2020	Y S	SUBCON
PFHpS (375-92-8)	1.7	ng/l	20/08/2020	Y S	SUBCON
PFHxA (307-24-4)	50.5	ng/l	20/08/2020	Y S	SUBCON
PFHxS (355-46-4)	11.2	ng/l	20/08/2020	Y S	SUBCON
PFNA (375-95-1)	7.5	ng/l	20/08/2020	Y S	SUBCON
PFOA (335-67-1)	24.5	ng/l	20/08/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/08/2020	Y S	SUBCON
PFPA (2706-90-3)	52.9	ng/l	20/08/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/08/2020	Y S	SUBCON
Total PFOS	75.9	ng/l	20/08/2020	Y S	SUBCON

Analyst Comments for 19542030:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **20 August 2020**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1904093/2020**

Issue **1**

Laboratory Number: **19542031**

Sample **3** of **3**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4090956 Surface Water Forest Road SWML5B**

Sample Matrix: **Surface Water**

Sample Date/Time: **28 July 2020**

Sample Received: **31 July 2020**

Analysis Complete: **20 August 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	9.17	ng/l	20/08/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	20/08/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	1.25	ng/l	20/08/2020	Y S	SUBCON
PFBA (357-22-4)	<14	ng/l	20/08/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/08/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/08/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/08/2020	Y S	SUBCON
PFHpA (375-85-9)	7.53	ng/l	20/08/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/08/2020	Y S	SUBCON
PFHxA (307-24-4)	9.44	ng/l	20/08/2020	Y S	SUBCON
PFHxS (355-46-4)	1.11	ng/l	20/08/2020	Y S	SUBCON
PFNA (375-95-1)	1.05	ng/l	20/08/2020	Y S	SUBCON
PFOA (335-67-1)	2.88	ng/l	20/08/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/08/2020	Y S	SUBCON
PFPA (2706-90-3)	9.25	ng/l	20/08/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/08/2020	Y S	SUBCON
Total PFOS	1.25	ng/l	20/08/2020	Y S	SUBCON

Analyst Comments for 19542031:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **20 August 2020**

Title: **Technical Inorganic Manager**



ANALYST COMMENTS FOR REPORT COV/1904093/2020

Issue 1

This issue replaces all previous issues

Date of Issue: **20 August 2020**

Sample No	Analysis Comments
19542029	
19542030	
19542031	

Signed: *D. Lewis*

Name: **D. Lewis**

Date: **20 August 2020**

Title: **Technical Inorganic Manager**




DETERMINAND COMMENTS FOR REPORT COV/1904093/2020

Date of Issue: 20 August 2020

ISSUE 1

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: D. Lewis	Date: 20 August 2020
	Title: Technical Inorganic Manager	

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ALS Environmental Ltd
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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

07 September 2020

Test Report: COV/1914681/2020

Dear Ms Thomas

Analysis of your sample(s) received on 25 August 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: A. Horobin

Title: CIP3 Project Manager



Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **07 September 2020**

Report Number: **COV/1914681/2020**

Issue **2**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: ROAD-622200820

Number of Samples
included in this report **8**

Job Received: **25 August 2020**

Number of Test Results
included in this report **136**

Analysis Commenced: **04 September 2020**

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **07 September 2020**

Title: **CIP3 Project Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 20

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1914681/2020**
Laboratory Number: **19614880**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4117936 SW R108 SWML4 14/8**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 August 2020**
Sample Received: **25 August 2020**
Analysis Complete: **07 September 2020**

Issue **2**
Sample **1** of **8**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	113	ng/l	04/09/2020	Y S	SUBCON
Branched PFOS	9.22	ng/l	04/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	20.6	ng/l	04/09/2020	Y S	SUBCON
PFBA (357-22-4)	26.4	ng/l	04/09/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	04/09/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	04/09/2020	Y S	SUBCON
PFHpA (375-85-9)	29.2	ng/l	04/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	04/09/2020	Y S	SUBCON
PFHxA (307-24-4)	44.5	ng/l	04/09/2020	Y S	SUBCON
PFHxS (355-46-4)	5.4	ng/l	04/09/2020	Y S	SUBCON
PFNA (375-95-1)	4.51	ng/l	04/09/2020	Y S	SUBCON
PFOA (335-67-1)	13.5	ng/l	04/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/09/2020	Y S	SUBCON
PFPA (2706-90-3)	59.1	ng/l	04/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/09/2020	Y S	SUBCON
Total PFOS	29.8	ng/l	04/09/2020	Y S	SUBCON

Analyst Comments for 19614880:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **07 September 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1914681/2020**
Laboratory Number: **19614881**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4117937 SW R108 SWML4 18/8**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 August 2020**
Sample Received: **25 August 2020**
Analysis Complete: **07 September 2020**

Issue **2**
Sample **2** of **8**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	103	ng/l	04/09/2020	Y S	SUBCON
Branched PFOS	9.08	ng/l	04/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	21.3	ng/l	04/09/2020	Y S	SUBCON
PFBA (357-22-4)	25	ng/l	04/09/2020	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	04/09/2020	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	04/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	04/09/2020	Y S	SUBCON
PFHpA (375-85-9)	25.1	ng/l	04/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	04/09/2020	Y S	SUBCON
PFHxA (307-24-4)	44.5	ng/l	04/09/2020	Y S	SUBCON
PFHxS (355-46-4)	5.08	ng/l	04/09/2020	Y S	SUBCON
PFNA (375-95-1)	4.65	ng/l	04/09/2020	Y S	SUBCON
PFOA (335-67-1)	13.6	ng/l	04/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	04/09/2020	Y S	SUBCON
PFPA (2706-90-3)	62.7	ng/l	04/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	04/09/2020	Y S	SUBCON
Total PFOS	30.3	ng/l	04/09/2020	Y S	SUBCON

Analyst Comments for 19614881:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5

9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **07 September 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

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Report Number: **COV/1914681/2020**
Laboratory Number: **19614882**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4117938 SW Forest road SWML 5 A 14/8**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 August 2020**
Sample Received: **25 August 2020**
Analysis Complete: **07 September 2020**

Issue **2**
Sample **3** of **8**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	92	ng/l	04/09/2020	Y S	SUBCON
Branched PFOS	9.08	ng/l	04/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	19.7	ng/l	04/09/2020	Y S	SUBCON
PFBA (357-22-4)	27.4	ng/l	04/09/2020	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	04/09/2020	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	04/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	04/09/2020	Y S	SUBCON
PFHpA (375-85-9)	24.8	ng/l	04/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	04/09/2020	Y S	SUBCON
PFHxA (307-24-4)	40.1	ng/l	04/09/2020	Y S	SUBCON
PFHxS (355-46-4)	5.08	ng/l	04/09/2020	Y S	SUBCON
PFNA (375-95-1)	3.78	ng/l	04/09/2020	Y S	SUBCON
PFOA (335-67-1)	13.3	ng/l	04/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	04/09/2020	Y S	SUBCON
PFPA (2706-90-3)	53	ng/l	04/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	04/09/2020	Y S	SUBCON
Total PFOS	28.8	ng/l	04/09/2020	Y S	SUBCON

Analyst Comments for 19614882:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **07 September 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1914681/2020**
Laboratory Number: **19614883**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4117939 SW Forest road SWML 5 A 18/8**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 August 2020**
Sample Received: **25 August 2020**
Analysis Complete: **07 September 2020**

Issue **2**
Sample **4** of **8**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	86.6	ng/l	04/09/2020	Y S	SUBCON
Branched PFOS	11.3	ng/l	04/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	26.3	ng/l	04/09/2020	Y S	SUBCON
PFBA (357-22-4)	27	ng/l	04/09/2020	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	04/09/2020	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	04/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	04/09/2020	Y S	SUBCON
PFHpA (375-85-9)	26	ng/l	04/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	04/09/2020	Y S	SUBCON
PFHxA (307-24-4)	38.9	ng/l	04/09/2020	Y S	SUBCON
PFHxS (355-46-4)	4.92	ng/l	04/09/2020	Y S	SUBCON
PFNA (375-95-1)	4.39	ng/l	04/09/2020	Y S	SUBCON
PFOA (335-67-1)	14.5	ng/l	04/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	04/09/2020	Y S	SUBCON
PFPA (2706-90-3)	52.2	ng/l	04/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	04/09/2020	Y S	SUBCON
Total PFOS	37.6	ng/l	04/09/2020	Y S	SUBCON

Analyst Comments for 19614883:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **07 September 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1914681/2020**
Laboratory Number: **19614884**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4117940 SW Forest road SWML 5 B 14/8**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 August 2020**
Sample Received: **25 August 2020**
Analysis Complete: **07 September 2020**

Issue **2**
Sample **5** of **8**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	8.02	ng/l	04/09/2020	Y S	SUBCON
Branched PFOS	7.4	ng/l	04/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	11.4	ng/l	04/09/2020	Y S	SUBCON
PFBA (357-22-4)	40.3	ng/l	04/09/2020	Y S	SUBCON
PFBS (375-73-5)	2.44	ng/l	04/09/2020	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	04/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	04/09/2020	Y S	SUBCON
PFHpA (375-85-9)	22.2	ng/l	04/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	04/09/2020	Y S	SUBCON
PFHxA (307-24-4)	29.5	ng/l	04/09/2020	Y S	SUBCON
PFHxS (355-46-4)	6.6	ng/l	04/09/2020	Y S	SUBCON
PFNA (375-95-1)	2.26	ng/l	04/09/2020	Y S	SUBCON
PFOA (335-67-1)	10.4	ng/l	04/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	04/09/2020	Y S	SUBCON
PFPA (2706-90-3)	34	ng/l	04/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	04/09/2020	Y S	SUBCON
Total PFOS	18.8	ng/l	04/09/2020	Y S	SUBCON

Analyst Comments for 19614884:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **07 September 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1914681/2020**
Laboratory Number: **19614885**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4117941 SW Forest road SWML 5 B 18/8**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 August 2020**
Sample Received: **25 August 2020**
Analysis Complete: **07 September 2020**

Issue **2**
Sample **6** of **8**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	13.8	ng/l	04/09/2020	Y S	SUBCON
Branched PFOS	8.44	ng/l	04/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	11.9	ng/l	04/09/2020	Y S	SUBCON
PFBA (357-22-4)	43.6	ng/l	04/09/2020	Y S	SUBCON
PFBS (375-73-5)	2.53	ng/l	04/09/2020	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	04/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	04/09/2020	Y S	SUBCON
PFHpA (375-85-9)	25.6	ng/l	04/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	04/09/2020	Y S	SUBCON
PFHxA (307-24-4)	32.2	ng/l	04/09/2020	Y S	SUBCON
PFHxS (355-46-4)	7.58	ng/l	04/09/2020	Y S	SUBCON
PFNA (375-95-1)	2.64	ng/l	04/09/2020	Y S	SUBCON
PFOA (335-67-1)	11.2	ng/l	04/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	04/09/2020	Y S	SUBCON
PFPA (2706-90-3)	36.7	ng/l	04/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	04/09/2020	Y S	SUBCON
Total PFOS	20.3	ng/l	04/09/2020	Y S	SUBCON

Analyst Comments for 19614885:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **07 September 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1914681/2020**

Issue **2**

Laboratory Number: **19614886**

Sample **7** of **8**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel**

Sample Description: **4117942 SW Ward Outlet SE of Site - SWML 7 2 14/8**

Sample Matrix: **Surface Water**

Sample Date/Time: **14 August 2020**

Sample Received: **25 August 2020**

Analysis Complete: **07 September 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	04/09/2020	Y S	SUBCON
Branched PFOS	1.71	ng/l	04/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	4.01	ng/l	04/09/2020	Y S	SUBCON
PFBA (357-22-4)	6.48	ng/l	04/09/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	04/09/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	04/09/2020	Y S	SUBCON
PFHpA (375-85-9)	1.34	ng/l	04/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	04/09/2020	Y S	SUBCON
PFHxA (307-24-4)	3.43	ng/l	04/09/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	04/09/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	04/09/2020	Y S	SUBCON
PFOA (335-67-1)	1.86	ng/l	04/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/09/2020	Y S	SUBCON
PFPA (2706-90-3)	5.97	ng/l	04/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/09/2020	Y S	SUBCON
Total PFOS	5.72	ng/l	04/09/2020	Y S	SUBCON

Analyst Comments for 19614886:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **07 September 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1914681/2020**

Issue **2**

Laboratory Number: **19614887**

Sample **8** of **8**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel**

Sample Description: **4117943 SW Ward Outlet SE of Site - SWML 7 2 18/8**

Sample Matrix: **Surface Water**

Sample Date/Time: **18 August 2020**

Sample Received: **25 August 2020**

Analysis Complete: **07 September 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	04/09/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	04/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	1.06	ng/l	04/09/2020	Y S	SUBCON
PFBA (357-22-4)	3.33	ng/l	04/09/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	04/09/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/09/2020	Y S	SUBCON
PFDaA (307-55-1)	<1	ng/l	04/09/2020	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	04/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	04/09/2020	Y S	SUBCON
PFHxA (307-24-4)	1.64	ng/l	04/09/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	04/09/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	04/09/2020	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	04/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/09/2020	Y S	SUBCON
PFPA (2706-90-3)	2.8	ng/l	04/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/09/2020	Y S	SUBCON
Total PFOS	1.06	ng/l	04/09/2020	Y S	SUBCON

Analyst Comments for 19614887:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **07 September 2020**

Title: **CIP3 Project Manager**



ANALYST COMMENTS FOR REPORT COV/1914681/2020

Issue 2

This issue replaces all previous issues

Date of Issue: **07 September 2020**

Sample No	Analysis Comments
19614880	
19614881	
19614882	
19614883	
19614884	
19614885	
19614886	
19614887	

Signed: *A Horobin*

Name: **A. Horobin**

Date: **07 September 2020**

Title: **CIP3 Project Manager**



DETERMINAND COMMENTS FOR REPORT COV/1914681/2020

ISSUE 2

Date of Issue: 07 September 2020

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: <i>A Horobin</i>	Name: A. Horobin	Date: 07 September 2020
	Title: CIP3 Project Manager	

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ALS Environmental Ltd

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

18 September 2020

Test Report: WAK/1919841/2020

Dear Ms Thomas

Analysis of your sample(s) received on 07 September 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: M. Forster

Title: Deputy Organic Manager



Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **18 September 2020**

Report Number: **WAK/1919841/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-552040920

Number of Samples
included in this report **7**

Job Received: **07 September 2020**

Number of Test Results
included in this report **119**

Analysis Commenced: **18 September 2020**

Signed: 

Name: **M. Forster**

Date: **18 September 2020**

Title: **Deputy Organic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 18

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1919841/2020**

Laboratory Number: **19651800**

Issue **1**

Sample **1** of **7**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4138400 Surface Water - R108 - SWML4 (1 No sample)**

Sample Matrix: **Surface Water**

Sample Date/Time: **01 September 2020**

Sample Received: **07 September 2020**

Analysis Complete: **18 September 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	55.2	ng/l	18/09/2020	Y S	SUBCON
Branched PFOS	8.53	ng/l	18/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	26.2	ng/l	18/09/2020	Y S	SUBCON
PFBA (357-22-4)	20.9	ng/l	18/09/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHpA (375-85-9)	21.2	ng/l	18/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHxA (307-24-4)	41.4	ng/l	18/09/2020	Y S	SUBCON
PFHxS (355-46-4)	5.75	ng/l	18/09/2020	Y S	SUBCON
PFNA (375-95-1)	3.15	ng/l	18/09/2020	Y S	SUBCON
PFOA (335-67-1)	8.23	ng/l	18/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/09/2020	Y S	SUBCON
PFPA (2706-90-3)	55.6	ng/l	18/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/09/2020	Y S	SUBCON
Total PFOS	34.7	ng/l	18/09/2020	Y S	SUBCON

Analyst Comments for 19651800:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **M. Forster**

Date: **18 September 2020**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1919841/2020**

Laboratory Number: **19651801**

Issue **1**

Sample **2** of **7**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4138401 Surface Water - Forest Road - SWML5A (1 No sample)**

Sample Matrix: **Surface Water**

Sample Date/Time: **01 September 2020**

Sample Received: **07 September 2020**

Analysis Complete: **18 September 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	74.5	ng/l	18/09/2020	Y S	SUBCON
Branched PFOS	5.3	ng/l	18/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	16.4	ng/l	18/09/2020	Y S	SUBCON
PFBA (357-22-4)	30.7	ng/l	18/09/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHpA (375-85-9)	22.1	ng/l	18/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHxA (307-24-4)	35.3	ng/l	18/09/2020	Y S	SUBCON
PFHxS (355-46-4)	4.86	ng/l	18/09/2020	Y S	SUBCON
PFNA (375-95-1)	2.71	ng/l	18/09/2020	Y S	SUBCON
PFOA (335-67-1)	10.6	ng/l	18/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/09/2020	Y S	SUBCON
PFPA (2706-90-3)	45.7	ng/l	18/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/09/2020	Y S	SUBCON
Total PFOS	21.7	ng/l	18/09/2020	Y S	SUBCON

Analyst Comments for 19651801:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **18 September 2020**

Title: **Deputy Organic Manager**

Certificate of Analysis

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Report Number: **WAK/1919841/2020**
Laboratory Number: **19651802**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4138402 Surface Water - Forest Road - SWML5B (1 No sample)**
Sample Matrix: **Surface Water**
Sample Date/Time: **01 September 2020**
Sample Received: **07 September 2020**
Analysis Complete: **18 September 2020**

Issue **1**
Sample **3** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	43.2	ng/l	18/09/2020	Y S	SUBCON
Branched PFOS	449	ng/l	18/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	482	ng/l	18/09/2020	Y S	SUBCON
PFBA (357-22-4)	74.9	ng/l	18/09/2020	Y S	SUBCON
PFBS (375-73-5)	19.8	ng/l	18/09/2020	Y S	SUBCON
PFDA (335-76-2)	2.99	ng/l	18/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHpA (375-85-9)	175	ng/l	18/09/2020	Y S	SUBCON
PFHpS (375-92-8)	36.3	ng/l	18/09/2020	Y S	SUBCON
PFHxA (307-24-4)	204	ng/l	18/09/2020	Y S	SUBCON
PFHxS (355-46-4)	354	ng/l	18/09/2020	Y S	SUBCON
PFNA (375-95-1)	117	ng/l	18/09/2020	Y S	SUBCON
PFOA (335-67-1)	287	ng/l	18/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/09/2020	Y S	SUBCON
PFPA (2706-90-3)	126	ng/l	18/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/09/2020	Y S	SUBCON
Total PFOS	930	ng/l	18/09/2020	Y S	SUBCON

Analyst Comments for 19651802:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.


Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **18 September 2020**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1919841/2020**

Laboratory Number: **19651803**

Issue **1**

Sample **4** of **7**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4138403 Surface Water - Ward Outlet (SE of Site) - SWML7**

Sample Matrix: **Surface Water**

Sample Date/Time: **01 September 2020**

Sample Received: **07 September 2020**

Analysis Complete: **18 September 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.39	ng/l	18/09/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	18/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	18/09/2020	Y S	SUBCON
PFBA (357-22-4)	5.7	ng/l	18/09/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHpA (375-85-9)	1.45	ng/l	18/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHxA (307-24-4)	5.2	ng/l	18/09/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	18/09/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	18/09/2020	Y S	SUBCON
PFOA (335-67-1)	0.976	ng/l	18/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/09/2020	Y S	SUBCON
PFPA (2706-90-3)	7.85	ng/l	18/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/09/2020	Y S	SUBCON
Total PFOS	<1	ng/l	18/09/2020	Y S	SUBCON

Analyst Comments for 19651803:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **18 September 2020**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1919841/2020**

Laboratory Number: **19651804**

Issue **1**

Sample **5** of **7**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4138404 Surface Water - APEC5 - SWML2 (1 No sample)**

Sample Matrix: **Surface Water**

Sample Date/Time: **21 August 2020**

Sample Received: **07 September 2020**

Analysis Complete: **18 September 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	12.1	ng/l	18/09/2020	Y S	SUBCON
Branched PFOS	3.89	ng/l	18/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	3.29	ng/l	18/09/2020	Y S	SUBCON
PFBA (357-22-4)	28.9	ng/l	18/09/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHpA (375-85-9)	41.1	ng/l	18/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHxA (307-24-4)	40	ng/l	18/09/2020	Y S	SUBCON
PFHxS (355-46-4)	3.85	ng/l	18/09/2020	Y S	SUBCON
PFNA (375-95-1)	1.24	ng/l	18/09/2020	Y S	SUBCON
PFOA (335-67-1)	6.48	ng/l	18/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/09/2020	Y S	SUBCON
PFPA (2706-90-3)	51.5	ng/l	18/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/09/2020	Y S	SUBCON
Total PFOS	7.18	ng/l	18/09/2020	Y S	SUBCON

Analyst Comments for 19651804:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **18 September 2020**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1919841/2020**
Laboratory Number: **19651805**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4138405 Surface Water - APEC5 - SWML2 (1 No sample)**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 August 2020**
Sample Received: **07 September 2020**
Analysis Complete: **18 September 2020**

Issue **1**
Sample **6** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	12.7	ng/l	18/09/2020	Y S	SUBCON
Branched PFOS	4.09	ng/l	18/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	3.91	ng/l	18/09/2020	Y S	SUBCON
PFBA (357-22-4)	30.4	ng/l	18/09/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHpA (375-85-9)	37.7	ng/l	18/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHxA (307-24-4)	40.2	ng/l	18/09/2020	Y S	SUBCON
PFHxS (355-46-4)	3.83	ng/l	18/09/2020	Y S	SUBCON
PFNA (375-95-1)	1.28	ng/l	18/09/2020	Y S	SUBCON
PFOA (335-67-1)	7.62	ng/l	18/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/09/2020	Y S	SUBCON
PFFPA (2706-90-3)	50	ng/l	18/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/09/2020	Y S	SUBCON
Total PFOS	8	ng/l	18/09/2020	Y S	SUBCON

Analyst Comments for 19651805:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.


Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **18 September 2020**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1919841/2020**

Laboratory Number: **19651806**

Issue **1**

Sample **7** of **7**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4138406 Surface Water - APEC5 - SWML2 (1 No sample)**

Sample Matrix: **Surface Water**

Sample Date/Time: **01 September 2020**

Sample Received: **07 September 2020**

Analysis Complete: **18 September 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	12	ng/l	18/09/2020	Y S	SUBCON
Branched PFOS	7.86	ng/l	18/09/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	9.63	ng/l	18/09/2020	Y S	SUBCON
PFBA (357-22-4)	28.2	ng/l	18/09/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	18/09/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHpA (375-85-9)	35.3	ng/l	18/09/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	18/09/2020	Y S	SUBCON
PFHxA (307-24-4)	37.5	ng/l	18/09/2020	Y S	SUBCON
PFHxS (355-46-4)	4.1	ng/l	18/09/2020	Y S	SUBCON
PFNA (375-95-1)	1.77	ng/l	18/09/2020	Y S	SUBCON
PFOA (335-67-1)	7.6	ng/l	18/09/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/09/2020	Y S	SUBCON
PFPA (2706-90-3)	50.9	ng/l	18/09/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/09/2020	Y S	SUBCON
Total PFOS	17.5	ng/l	18/09/2020	Y S	SUBCON

Analyst Comments for 19651806:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **18 September 2020**

Title: **Deputy Organic Manager**




ANALYST COMMENTS FOR REPORT WAK/1919841/2020

Issue 1

This issue replaces all previous issues

Date of Issue: **18 September 2020**

Sample No	Analysis Comments
19651800	
19651801	
19651802	
19651803	
19651804	
19651805	
19651806	

Signed: 

Name: **M. Forster**

Date: **18 September 2020**

Title: **Deputy Organic Manager**




DETERMINAND COMMENTS FOR REPORT WAK/1919841/2020

ISSUE 1

Date of Issue: 18 September 2020

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: M. Forster	Date: 18 September 2020
	Title: Deputy Organic Manager	

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

09 October 2020

Test Report: WAK/1927923/2020

Dear Ms Thomas

Analysis of your sample(s) received on 24 September 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: C. Ulph

Title: Micro/Crypto/Logistics Manager



Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **09 October 2020**

Report Number: **WAK/1927923/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-617230920

Number of Samples
included in this report **5**

Job Received: **24 September 2020**

Number of Test Results
included in this report **85**

Analysis Commenced: **08 October 2020**

Signed:

Name: **C. Ulph**

Date: **09 October 2020**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1927923/2020**
Laboratory Number: **19709328**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4162811 - R108 - SWML 1 (1 no. Sample)**
Sample Matrix: **Surface Water**
Sample Date/Time: **17 September 2020**
Sample Received: **24 September 2020**
Analysis Complete: **09 October 2020**

Issue **1**
Sample **1** of **5**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	23	ng/l	08/10/2020	Y S	SUBCON
Branched PFOS	5.28	ng/l	08/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	9.02	ng/l	08/10/2020	Y S	SUBCON
PFBA (357-22-4)	32.1	ng/l	08/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/10/2020	Y S	SUBCON
PFHpA (375-85-9)	38.4	ng/l	08/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/10/2020	Y S	SUBCON
PFHxA (307-24-4)	56.3	ng/l	08/10/2020	Y S	SUBCON
PFHxS (355-46-4)	5.65	ng/l	08/10/2020	Y S	SUBCON
PFNA (375-95-1)	1.78	ng/l	08/10/2020	Y S	SUBCON
PFOA (335-67-1)	9.61	ng/l	08/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/10/2020	Y S	SUBCON
PFPA (2706-90-3)	97.6	ng/l	08/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/10/2020	Y S	SUBCON
Total PFOS	14.3	ng/l	08/10/2020	Y S	SUBCON

Analyst Comments for 19709328:

No Analyst Comment

This issue replaces all previous issues

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Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 2 of 14

Signed:



Name: **C. Ulph**

Date: **09 October 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1927923/2020**

Laboratory Number: **19709329**

Issue **1**

Sample **2** of **5**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4162812 - Forest Road - SWML 5A (1 no. Sample)**

Sample Matrix: **Surface Water**

Sample Date/Time: **17 September 2020**

Sample Received: **24 September 2020**

Analysis Complete: **09 October 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	18.6	ng/l	08/10/2020	Y S	SUBCON
Branched PFOS	3.62	ng/l	08/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	6.34	ng/l	08/10/2020	Y S	SUBCON
PFBA (357-22-4)	30.2	ng/l	08/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/10/2020	Y S	SUBCON
PFHpA (375-85-9)	35.7	ng/l	08/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/10/2020	Y S	SUBCON
PFHxA (307-24-4)	41	ng/l	08/10/2020	Y S	SUBCON
PFHxS (355-46-4)	5.59	ng/l	08/10/2020	Y S	SUBCON
PFNA (375-95-1)	1.76	ng/l	08/10/2020	Y S	SUBCON
PFOA (335-67-1)	8.89	ng/l	08/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/10/2020	Y S	SUBCON
PFFPA (2706-90-3)	71.2	ng/l	08/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/10/2020	Y S	SUBCON
Total PFOS	9.97	ng/l	08/10/2020	Y S	SUBCON

Analyst Comments for 19709329:

No Analyst Comment

This issue replaces all previous issues

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **09 October 2020**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1927923/2020**
Laboratory Number: **19709330**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4162813 - Forest Road - SWML 5B (1 no. Sample)**
Sample Matrix: **Surface Water**
Sample Date/Time: **17 September 2020**
Sample Received: **24 September 2020**
Analysis Complete: **09 October 2020**

Issue **1**
Sample **3** of **5**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	63	ng/l	08/10/2020	Y S	SUBCON
Branched PFOS	144	ng/l	08/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	135	ng/l	08/10/2020	Y S	SUBCON
PFBA (357-22-4)	48.6	ng/l	08/10/2020	Y S	SUBCON
PFBS (375-73-5)	13.5	ng/l	08/10/2020	Y S	SUBCON
PFDA (335-76-2)	1.11	ng/l	08/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/10/2020	Y S	SUBCON
PFHpA (375-85-9)	136	ng/l	08/10/2020	Y S	SUBCON
PFHpS (375-92-8)	15.2	ng/l	08/10/2020	Y S	SUBCON
PFHxA (307-24-4)	112	ng/l	08/10/2020	Y S	SUBCON
PFHxS (355-46-4)	235	ng/l	08/10/2020	Y S	SUBCON
PFNA (375-95-1)	41.6	ng/l	08/10/2020	Y S	SUBCON
PFOA (335-67-1)	106	ng/l	08/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/10/2020	Y S	SUBCON
PFPA (2706-90-3)	116	ng/l	08/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/10/2020	Y S	SUBCON
Total PFOS	280	ng/l	08/10/2020	Y S	SUBCON

Analyst Comments for 19709330:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 6 of 14

Signed:



Name: **C. Ulph**

Date: **09 October 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1927923/2020**

Laboratory Number: **19709331**

Issue **1**

Sample **4** of **5**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4162814 - Ward Outlet (SE of Site) - SWML 7 (1 no. Sample)**

Sample Matrix: **Surface Water**

Sample Date/Time: **17 September 2020**

Sample Received: **24 September 2020**

Analysis Complete: **09 October 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	08/10/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	08/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	08/10/2020	Y S	SUBCON
PFBA (357-22-4)	4.17	ng/l	08/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/10/2020	Y S	SUBCON
PFHpA (375-85-9)	1.03	ng/l	08/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/10/2020	Y S	SUBCON
PFHxA (307-24-4)	2.44	ng/l	08/10/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	08/10/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	08/10/2020	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	08/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/10/2020	Y S	SUBCON
PFFPA (2706-90-3)	5.75	ng/l	08/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/10/2020	Y S	SUBCON
Total PFOS	<1	ng/l	08/10/2020	Y S	SUBCON

Analyst Comments for 19709331:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **09 October 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1927923/2020**
Laboratory Number: **19709332**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4162815 SWML 4**
Sample Matrix: **Ground Water**
Sample Date/Time: **11 September 2020**
Sample Received: **24 September 2020**
Analysis Complete: **09 October 2020**

Issue **1**
Sample **5** of **5**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	08/10/2020	Y S	SUBCON
Branched PFOS	<5	ng/l	08/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	08/10/2020	Y S	SUBCON
PFBA (357-22-4)	18	ng/l	08/10/2020	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	08/10/2020	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	08/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	08/10/2020	Y S	SUBCON
PFHpA (375-85-9)	<5	ng/l	08/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	08/10/2020	Y S	SUBCON
PFHxA (307-24-4)	<5	ng/l	08/10/2020	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	08/10/2020	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	08/10/2020	Y S	SUBCON
PFOA (335-67-1)	<3.25	ng/l	08/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	08/10/2020	Y S	SUBCON
PFFPA (2706-90-3)	16.9	ng/l	08/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	08/10/2020	Y S	SUBCON
Total PFOS	<5	ng/l	08/10/2020	Y S	SUBCON

Analyst Comments for 19709332:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 10 of 14

Signed:



Name: **C. Ulph**

Date: **09 October 2020**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/1927923/2020

Issue 1

This issue replaces all previous issues

Date of Issue: **09 October 2020**

Sample No	Analysis Comments
19709328	
19709329	
19709330	
19709331	
19709332	

Signed: 

Name: **C. Ulph**

Date: **09 October 2020**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/1927923/2020

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 09 October 2020

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 09 October 2020
	Title: Micro/Crypto/Logistics Manager	

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ALS Environmental Ltd

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

29 October 2020

Test Report: COV/1934161/2020

Dear Ms Thomas

Analysis of your sample(s) received on 08 October 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: R. Stocks

Title: Inorganic Team Leader



Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **29 October 2020**

Report Number: **COV/1934161/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-719071020

Number of Samples
included in this report **10**

Job Received: **08 October 2020**

Number of Test Results
included in this report **170**

Analysis Commenced: **29 October 2020**

Signed:

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 24

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1934161/2020**
Laboratory Number: **19754199**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4181892 R108 SWML2**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 September 2020**
Sample Received: **08 October 2020**
Analysis Complete: **29 October 2020**

Issue **1**
Sample **1** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	4.47	ng/l	29/10/2020	Y S	SUBCON
Branched PFOS	4.93	ng/l	29/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	5.65	ng/l	29/10/2020	Y S	SUBCON
PFBA (357-22-4)	16.6	ng/l	29/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHpA (375-85-9)	8.54	ng/l	29/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHxA (307-24-4)	20.4	ng/l	29/10/2020	Y S	SUBCON
PFHxS (355-46-4)	3.89	ng/l	29/10/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFOA (335-67-1)	3.19	ng/l	29/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	29/10/2020	Y S	SUBCON
PFPA (2706-90-3)	40.5	ng/l	29/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	29/10/2020	Y S	SUBCON
Total PFOS	10.6	ng/l	29/10/2020	Y S	SUBCON

Analyst Comments for 19754199:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1934161/2020**
Laboratory Number: **19754200**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4181893 R108 SWML4**
Sample Matrix: **Surface Water**
Sample Date/Time: **23 September 2020**
Sample Received: **08 October 2020**
Analysis Complete: **29 October 2020**

Issue **1**
Sample **2** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	195	ng/l	29/10/2020	Y S	SUBCON
Branched PFOS	19.9	ng/l	29/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	47.2	ng/l	29/10/2020	Y S	SUBCON
PFBA (357-22-4)	73.7	ng/l	29/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHpA (375-85-9)	24.7	ng/l	29/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1.5	ng/l	29/10/2020	Y S	SUBCON
PFHxA (307-24-4)	62.9	ng/l	29/10/2020	Y S	SUBCON
PFHxS (355-46-4)	8.35	ng/l	29/10/2020	Y S	SUBCON
PFNA (375-95-1)	4.77	ng/l	29/10/2020	Y S	SUBCON
PFOA (335-67-1)	16.3	ng/l	29/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	29/10/2020	Y S	SUBCON
PFPA (2706-90-3)	106	ng/l	29/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	29/10/2020	Y S	SUBCON
Total PFOS	67.1	ng/l	29/10/2020	Y S	SUBCON

Analyst Comments for 19754200:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**

Certificate of Analysis

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Report Number: **COV/1934161/2020**
Laboratory Number: **19754201**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4181894 Forest Road SWML5 A**
Sample Matrix: **Surface Water**
Sample Date/Time: **23 September 2020**
Sample Received: **08 October 2020**
Analysis Complete: **29 October 2020**

Issue **1**
Sample **3** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	11.8	ng/l	29/10/2020	Y S	SUBCON
Branched PFOS	2.12	ng/l	29/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	3.28	ng/l	29/10/2020	Y S	SUBCON
PFBA (357-22-4)	32.2	ng/l	29/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHpA (375-85-9)	<2.5	ng/l	29/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHxA (307-24-4)	3.86	ng/l	29/10/2020	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	29/10/2020	Y S	SUBCON
PFNA (375-95-1)	<1.5	ng/l	29/10/2020	Y S	SUBCON
PFOA (335-67-1)	1.87	ng/l	29/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	29/10/2020	Y S	SUBCON
PFPA (2706-90-3)	5.51	ng/l	29/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	29/10/2020	Y S	SUBCON
Total PFOS	5.4	ng/l	29/10/2020	Y S	SUBCON

Analyst Comments for 19754201:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

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Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**

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Report Number: **COV/1934161/2020**
Laboratory Number: **19754202**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4181895 Forest Road SWML5 B**
Sample Matrix: **Surface Water**
Sample Date/Time: **22 September 2020**
Sample Received: **08 October 2020**
Analysis Complete: **29 October 2020**

Issue **1**
Sample **4** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	58.5	ng/l	29/10/2020	Y S	SUBCON
Branched PFOS	124	ng/l	29/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	94.1	ng/l	29/10/2020	Y S	SUBCON
PFBA (357-22-4)	44.1	ng/l	29/10/2020	Y S	SUBCON
PFBS (375-73-5)	16	ng/l	29/10/2020	Y S	SUBCON
PFDA (335-76-2)	2.28	ng/l	29/10/2020	Y S	SUBCON
PFDoA (307-55-1)	1.32	ng/l	29/10/2020	Y S	SUBCON
PFHpA (375-85-9)	47.1	ng/l	29/10/2020	Y S	SUBCON
PFHpS (375-92-8)	8.18	ng/l	29/10/2020	Y S	SUBCON
PFHxA (307-24-4)	74.6	ng/l	29/10/2020	Y S	SUBCON
PFHxS (355-46-4)	148	ng/l	29/10/2020	Y S	SUBCON
PFNA (375-95-1)	22.5	ng/l	29/10/2020	Y S	SUBCON
PFOA (335-67-1)	67.3	ng/l	29/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	29/10/2020	Y S	SUBCON
PFPA (2706-90-3)	55.1	ng/l	29/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	1.42	ng/l	29/10/2020	Y S	SUBCON
Total PFOS	219	ng/l	29/10/2020	Y S	SUBCON

Analyst Comments for 19754202:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1934161/2020**
Laboratory Number: **19754203**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4181896 Ward Outlet SE Of Site SWML7**
Sample Matrix: **Surface Water**
Sample Date/Time: **23 September 2020**
Sample Received: **08 October 2020**
Analysis Complete: **29 October 2020**

Issue **1**
Sample **5** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	29/10/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	29/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	29/10/2020	Y S	SUBCON
PFBA (357-22-4)	8.81	ng/l	29/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHxA (307-24-4)	3.09	ng/l	29/10/2020	Y S	SUBCON
PFHxS (355-46-4)	<2.5	ng/l	29/10/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	29/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	29/10/2020	Y S	SUBCON
PFPA (2706-90-3)	5.52	ng/l	29/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	29/10/2020	Y S	SUBCON
Total PFOS	<1	ng/l	29/10/2020	Y S	SUBCON

Analyst Comments for 19754203:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 10 of 24

Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1934161/2020**
Laboratory Number: **19754204**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4181897 R108 SWML2**
Sample Matrix: **Surface Water**
Sample Date/Time: **30 September 2020**
Sample Received: **08 October 2020**
Analysis Complete: **29 October 2020**

Issue **1**
Sample **6** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	11	ng/l	29/10/2020	Y S	SUBCON
Branched PFOS	4.05	ng/l	29/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	3.07	ng/l	29/10/2020	Y S	SUBCON
PFBA (357-22-4)	27.9	ng/l	29/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHpA (375-85-9)	11.5	ng/l	29/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHxA (307-24-4)	28.2	ng/l	29/10/2020	Y S	SUBCON
PFHxS (355-46-4)	5.15	ng/l	29/10/2020	Y S	SUBCON
PFNA (375-95-1)	1.19	ng/l	29/10/2020	Y S	SUBCON
PFOA (335-67-1)	4.55	ng/l	29/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	29/10/2020	Y S	SUBCON
PFPA (2706-90-3)	55.4	ng/l	29/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	29/10/2020	Y S	SUBCON
Total PFOS	7.12	ng/l	29/10/2020	Y S	SUBCON

Analyst Comments for 19754204:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1934161/2020**
Laboratory Number: **19754205**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4181898 R108 SWML4**
Sample Matrix: **Surface Water**
Sample Date/Time: **30 September 2020**
Sample Received: **08 October 2020**
Analysis Complete: **29 October 2020**

Issue **1**
Sample **7** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	119	ng/l	29/10/2020	Y S	SUBCON
Branched PFOS	17.1	ng/l	29/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	48.1	ng/l	29/10/2020	Y S	SUBCON
PFBA (357-22-4)	29.8	ng/l	29/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHpA (375-85-9)	21.7	ng/l	29/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1.5	ng/l	29/10/2020	Y S	SUBCON
PFHxA (307-24-4)	52.9	ng/l	29/10/2020	Y S	SUBCON
PFHxS (355-46-4)	6.3	ng/l	29/10/2020	Y S	SUBCON
PFNA (375-95-1)	5.53	ng/l	29/10/2020	Y S	SUBCON
PFOA (335-67-1)	13.8	ng/l	29/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	29/10/2020	Y S	SUBCON
PFPA (2706-90-3)	99.1	ng/l	29/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	29/10/2020	Y S	SUBCON
Total PFOS	65.2	ng/l	29/10/2020	Y S	SUBCON

Analyst Comments for 19754205:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 14 of 24

Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1934161/2020**
Laboratory Number: **19754206**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4181899 Forest Road SWML5 A**
Sample Matrix: **Surface Water**
Sample Date/Time: **30 September 2020**
Sample Received: **08 October 2020**
Analysis Complete: **29 October 2020**

Issue **1**
Sample **8** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	39.7	ng/l	29/10/2020	Y S	SUBCON
Branched PFOS	12.3	ng/l	29/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	22	ng/l	29/10/2020	Y S	SUBCON
PFBA (357-22-4)	28.7	ng/l	29/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHpA (375-85-9)	12.1	ng/l	29/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1.5	ng/l	29/10/2020	Y S	SUBCON
PFHxA (307-24-4)	24.5	ng/l	29/10/2020	Y S	SUBCON
PFHxS (355-46-4)	7.44	ng/l	29/10/2020	Y S	SUBCON
PFNA (375-95-1)	3.63	ng/l	29/10/2020	Y S	SUBCON
PFOA (335-67-1)	8.86	ng/l	29/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	29/10/2020	Y S	SUBCON
PFPA (2706-90-3)	48.7	ng/l	29/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	29/10/2020	Y S	SUBCON
Total PFOS	34.4	ng/l	29/10/2020	Y S	SUBCON

Analyst Comments for 19754206:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1934161/2020**
Laboratory Number: **19754207**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4181900 Forest Road SWML5 B**
Sample Matrix: **Surface Water**
Sample Date/Time: **30 September 2020**
Sample Received: **08 October 2020**
Analysis Complete: **29 October 2020**

Issue **1**
Sample **9** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	25.8	ng/l	29/10/2020	Y S	SUBCON
Branched PFOS	48.8	ng/l	29/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	62.3	ng/l	29/10/2020	Y S	SUBCON
PFBA (357-22-4)	38.9	ng/l	29/10/2020	Y S	SUBCON
PFBS (375-73-5)	7.7	ng/l	29/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1.5	ng/l	29/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHpA (375-85-9)	17.4	ng/l	29/10/2020	Y S	SUBCON
PFHpS (375-92-8)	2.78	ng/l	29/10/2020	Y S	SUBCON
PFHxA (307-24-4)	26.1	ng/l	29/10/2020	Y S	SUBCON
PFHxS (355-46-4)	50.9	ng/l	29/10/2020	Y S	SUBCON
PFNA (375-95-1)	8.58	ng/l	29/10/2020	Y S	SUBCON
PFOA (335-67-1)	25.2	ng/l	29/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	29/10/2020	Y S	SUBCON
PFPA (2706-90-3)	21.1	ng/l	29/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	29/10/2020	Y S	SUBCON
Total PFOS	111	ng/l	29/10/2020	Y S	SUBCON

Analyst Comments for 19754207:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1934161/2020**
Laboratory Number: **19754208**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4181901 Downgradient of R2 GWML4**
Sample Matrix: **Ground Water**
Sample Date/Time: **30 September 2020**
Sample Received: **08 October 2020**
Analysis Complete: **29 October 2020**

Issue **1**
Sample **10** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	4.56	ng/l	29/10/2020	Y S	SUBCON
Branched PFOS	1.33	ng/l	29/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	1.53	ng/l	29/10/2020	Y S	SUBCON
PFBA (357-22-4)	82.5	ng/l	29/10/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	29/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHpA (375-85-9)	1.26	ng/l	29/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	29/10/2020	Y S	SUBCON
PFHxA (307-24-4)	2.51	ng/l	29/10/2020	Y S	SUBCON
PFHxS (355-46-4)	<2.5	ng/l	29/10/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	29/10/2020	Y S	SUBCON
PFOA (335-67-1)	2.15	ng/l	29/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	29/10/2020	Y S	SUBCON
PFPA (2706-90-3)	<1	ng/l	29/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	29/10/2020	Y S	SUBCON
Total PFOS	2.86	ng/l	29/10/2020	Y S	SUBCON

Analyst Comments for 19754208:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**



ANALYST COMMENTS FOR REPORT COV/1934161/2020

Issue 1

This issue replaces
all previous issues

Date of Issue: **29 October 2020**

Sample No	Analysis Comments
19754199	
19754200	
19754201	
19754202	
19754203	
19754204	
19754205	
19754206	
19754207	
19754208	

Signed: 

Name: **R. Stocks**

Date: **29 October 2020**

Title: **Inorganic Team Leader**




DETERMINAND COMMENTS FOR REPORT COV/1934161/2020

ISSUE 1

Date of Issue: 29 October 2020

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: R. Stocks	Date: 29 October 2020
	Title: Inorganic Team Leader	

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

27 October 2020

Test Report: WAK/1936675/2020

Dear Ms Thomas

Analysis of your sample(s) received on 14 October 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

C. Ulph

Title:

Micro/Crypto/Logistics Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **27 October 2020**

Report Number: **WAK/1936675/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-455121020

Number of Samples
included in this report **2**

Job Received: **14 October 2020**

Number of Test Results
included in this report **34**

Analysis Commenced: **27 October 2020**

Signed:

Name: **C. Ulph**

Date: **27 October 2020**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Page 1 of 8

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1936675/2020**
Laboratory Number: **19771970**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4187951 GWML 4**
Sample Matrix: **Ground Water**
Sample Date/Time: **08 October 2020**
Sample Received: **14 October 2020**
Analysis Complete: **27 October 2020**

Issue **1**
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	5.94	ng/l	27/10/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	27/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	0.817	ng/l	27/10/2020	Y S	SUBCON
PFBA (357-22-4)	<12	ng/l	27/10/2020	Y S	SUBCON
PFBS (375-73-5)	1.9	ng/l	27/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	27/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	27/10/2020	Y S	SUBCON
PFHpA (375-85-9)	<2	ng/l	27/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	27/10/2020	Y S	SUBCON
PFHxA (307-24-4)	1.9	ng/l	27/10/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	27/10/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	27/10/2020	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	27/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	27/10/2020	Y S	SUBCON
PFPA (2706-90-3)	<3	ng/l	27/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	27/10/2020	Y S	SUBCON
Total PFOS	<1	ng/l	27/10/2020	Y S	SUBCON

Analyst Comments for 19771970:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 2 of 8

Signed:



Name: **C. Ulph**

Date: **27 October 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1936675/2020**
Laboratory Number: **19771971**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4187952 GWML 5**
Sample Matrix: **Ground Water**
Sample Date/Time: **08 October 2020**
Sample Received: **14 October 2020**
Analysis Complete: **27 October 2020**

Issue **1**
Sample **2** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.23	ng/l	27/10/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	27/10/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	27/10/2020	Y S	SUBCON
PFBA (357-22-4)	16.2	ng/l	27/10/2020	Y S	SUBCON
PFBS (375-73-5)	<2.5	ng/l	27/10/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	27/10/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	27/10/2020	Y S	SUBCON
PFHpA (375-85-9)	<1.5	ng/l	27/10/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	27/10/2020	Y S	SUBCON
PFHxA (307-24-4)	3.91	ng/l	27/10/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	27/10/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	27/10/2020	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	27/10/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	27/10/2020	Y S	SUBCON
PFFPA (2706-90-3)	8.91	ng/l	27/10/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	27/10/2020	Y S	SUBCON
Total PFOS	<1	ng/l	27/10/2020	Y S	SUBCON

Analyst Comments for 19771971:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 4 of 8

Signed:



Name: **C. Ulph**

Date: **27 October 2020**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/1936675/2020

Issue 1

This issue replaces all previous issues

Date of Issue: **27 October 2020**

Sample No	Analysis Comments
19771970	
19771971	

Signed: 

Name: **C. Ulph**

Date: **27 October 2020**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/1936675/2020

Date of Issue: 27 October 2020

ISSUE 1

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 27 October 2020
	Title: Micro/Crypto/Logistics Manager	

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Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

11 November 2020

Test Report: WAK/1939375/2020

Dear Ms Thomas

Analysis of your sample(s) received on 20 October 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

C. Ulph

Title:

Micro/Crypto/Logistics Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **11 November 2020**

Report Number: **WAK/1939375/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-484191020

Number of Samples
included in this report **7**

Job Received: **20 October 2020**

Number of Test Results
included in this report **119**

Analysis Commenced: **10 November 2020**

Signed:

Name: **C. Ulph**

Date: **11 November 2020**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

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Page 1 of 18

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1939375/2020**
Laboratory Number: **19790265**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4199133 R108 - SWML4**
Sample Matrix: **Surface Water**
Sample Date/Time: **15 October 2020**
Sample Received: **20 October 2020**
Analysis Complete: **11 November 2020**

Issue **1**
Sample **1** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	159	ng/l	10/11/2020	Y S	SUBCON
Branched PFOS	12.8	ng/l	10/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	36.2	ng/l	10/11/2020	Y S	SUBCON
PFBA (357-22-4)	30.1	ng/l	10/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	10/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/11/2020	Y S	SUBCON
PFHpA (375-85-9)	52.1	ng/l	10/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/11/2020	Y S	SUBCON
PFHxA (307-24-4)	54.3	ng/l	10/11/2020	Y S	SUBCON
PFHxS (355-46-4)	8.03	ng/l	10/11/2020	Y S	SUBCON
PFNA (375-95-1)	4.37	ng/l	10/11/2020	Y S	SUBCON
PFOA (335-67-1)	16.4	ng/l	10/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/11/2020	Y S	SUBCON
PFPA (2706-90-3)	77.3	ng/l	10/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/11/2020	Y S	SUBCON
Total PFOS	49	ng/l	10/11/2020	Y S	SUBCON

Analyst Comments for 19790265:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 2 of 18

Signed:



Name: **C. Ulph**

Date: **11 November 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1939375/2020**
Laboratory Number: **19790266**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4199134 Forest Road - SWML5 A**
Sample Matrix: **Surface Water**
Sample Date/Time: **15 October 2020**
Sample Received: **20 October 2020**
Analysis Complete: **11 November 2020**

Issue **1**
Sample **2** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	61.8	ng/l	10/11/2020	Y S	SUBCON
Branched PFOS	3.2	ng/l	10/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	6.68	ng/l	10/11/2020	Y S	SUBCON
PFBA (357-22-4)	19.9	ng/l	10/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	10/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/11/2020	Y S	SUBCON
PFHpA (375-85-9)	29.1	ng/l	10/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/11/2020	Y S	SUBCON
PFHxA (307-24-4)	24.1	ng/l	10/11/2020	Y S	SUBCON
PFHxS (355-46-4)	6.84	ng/l	10/11/2020	Y S	SUBCON
PFNA (375-95-1)	2.38	ng/l	10/11/2020	Y S	SUBCON
PFOA (335-67-1)	9.54	ng/l	10/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/11/2020	Y S	SUBCON
PFPA (2706-90-3)	31.8	ng/l	10/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/11/2020	Y S	SUBCON
Total PFOS	9.88	ng/l	10/11/2020	Y S	SUBCON

Analyst Comments for 19790266:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **11 November 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1939375/2020**
Laboratory Number: **19790267**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4199135 Forest Road - SWML5 B**
Sample Matrix: **Surface Water**
Sample Date/Time: **15 October 2020**
Sample Received: **20 October 2020**
Analysis Complete: **11 November 2020**

Issue **1**
Sample **3** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	422	ng/l	10/11/2020	Y S	SUBCON
Branched PFOS	26.6	ng/l	10/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	61.9	ng/l	10/11/2020	Y S	SUBCON
PFBA (357-22-4)	14.4	ng/l	10/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	10/11/2020	Y S	SUBCON
PFDA (335-76-2)	1.25	ng/l	10/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/11/2020	Y S	SUBCON
PFHpA (375-85-9)	40.8	ng/l	10/11/2020	Y S	SUBCON
PFHpS (375-92-8)	2.57	ng/l	10/11/2020	Y S	SUBCON
PFHxA (307-24-4)	25.5	ng/l	10/11/2020	Y S	SUBCON
PFHxS (355-46-4)	30.8	ng/l	10/11/2020	Y S	SUBCON
PFNA (375-95-1)	16.7	ng/l	10/11/2020	Y S	SUBCON
PFOA (335-67-1)	30.7	ng/l	10/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/11/2020	Y S	SUBCON
PFFPA (2706-90-3)	15.9	ng/l	10/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/11/2020	Y S	SUBCON
Total PFOS	88.5	ng/l	10/11/2020	Y S	SUBCON

Analyst Comments for 19790267:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **11 November 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1939375/2020**
Laboratory Number: **19790268**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4199136 Ward Outlet (SE of Site) - SWML7A**
Sample Matrix: **Surface Water**
Sample Date/Time: **15 October 2020**
Sample Received: **20 October 2020**
Analysis Complete: **11 November 2020**

Issue **1**
Sample **4** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	10/11/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	10/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	10/11/2020	Y S	SUBCON
PFBA (357-22-4)	3.81	ng/l	10/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	10/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/11/2020	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	10/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/11/2020	Y S	SUBCON
PFHxA (307-24-4)	1.95	ng/l	10/11/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	10/11/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	10/11/2020	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	10/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/11/2020	Y S	SUBCON
PFFPA (2706-90-3)	3.44	ng/l	10/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/11/2020	Y S	SUBCON
Total PFOS	<1	ng/l	10/11/2020	Y S	SUBCON

Analyst Comments for 19790268:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **11 November 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1939375/2020**

Laboratory Number: **19790269**

Issue **1**

Sample **5** of **7**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4199137 Ward Outlet (Upstream of Site) - SWML7B**

Sample Matrix: **Surface Water**

Sample Date/Time: **15 October 2020**

Sample Received: **20 October 2020**

Analysis Complete: **11 November 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	10/11/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	10/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	10/11/2020	Y S	SUBCON
PFBA (357-22-4)	6.56	ng/l	10/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	10/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/11/2020	Y S	SUBCON
PFHpA (375-85-9)	1.62	ng/l	10/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/11/2020	Y S	SUBCON
PFHxA (307-24-4)	1.15	ng/l	10/11/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	10/11/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	10/11/2020	Y S	SUBCON
PFOA (335-67-1)	1.05	ng/l	10/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/11/2020	Y S	SUBCON
PFPA (2706-90-3)	1.64	ng/l	10/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/11/2020	Y S	SUBCON
Total PFOS	<1	ng/l	10/11/2020	Y S	SUBCON

Analyst Comments for 19790269:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **11 November 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1939375/2020**
Laboratory Number: **19790270**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4199138 GWML4**
Sample Matrix: **Ground Water**
Sample Date/Time: **14 October 2020**
Sample Received: **20 October 2020**
Analysis Complete: **11 November 2020**

Issue **1**
Sample **6** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	10/11/2020	Y S	SUBCON
Branched PFOS	<5	ng/l	10/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	10/11/2020	Y S	SUBCON
PFBA (357-22-4)	14.2	ng/l	10/11/2020	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	10/11/2020	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	10/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	10/11/2020	Y S	SUBCON
PFHpA (375-85-9)	<5	ng/l	10/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	10/11/2020	Y S	SUBCON
PFHxA (307-24-4)	<5	ng/l	10/11/2020	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	10/11/2020	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	10/11/2020	Y S	SUBCON
PFOA (335-67-1)	<3.25	ng/l	10/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	10/11/2020	Y S	SUBCON
PFPA (2706-90-3)	<5	ng/l	10/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	10/11/2020	Y S	SUBCON
Total PFOS	<5	ng/l	10/11/2020	Y S	SUBCON

Analyst Comments for 19790270:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **11 November 2020**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1939375/2020**
Laboratory Number: **19790271**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4199139 GWML5**
Sample Matrix: **Ground Water**
Sample Date/Time: **14 October 2020**
Sample Received: **20 October 2020**
Analysis Complete: **11 November 2020**

Issue **1**
Sample **7** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	10/11/2020	Y S	SUBCON
Branched PFOS	<5	ng/l	10/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	10/11/2020	Y S	SUBCON
PFBA (357-22-4)	28.3	ng/l	10/11/2020	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	10/11/2020	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	10/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	10/11/2020	Y S	SUBCON
PFHpA (375-85-9)	<5	ng/l	10/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	10/11/2020	Y S	SUBCON
PFHxA (307-24-4)	<5	ng/l	10/11/2020	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	10/11/2020	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	10/11/2020	Y S	SUBCON
PFOA (335-67-1)	<3.25	ng/l	10/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	10/11/2020	Y S	SUBCON
PFPA (2706-90-3)	10.4	ng/l	10/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	10/11/2020	Y S	SUBCON
Total PFOS	<5	ng/l	10/11/2020	Y S	SUBCON

Analyst Comments for 19790271:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 14 of 18

Signed:



Name: **C. Ulph**

Date: **11 November 2020**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/1939375/2020

Issue 1

This issue replaces all previous issues

Date of Issue: **11 November 2020**

Sample No	Analysis Comments
19790265	
19790266	
19790267	
19790268	
19790269	
19790270	
19790271	

Signed:

Name: **C. Ulph**

Date: **11 November 2020**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/1939375/2020

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 11 November 2020

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 11 November 2020
	Title: Micro/Crypto/Logistics Manager	

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ALS Environmental Ltd
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Coventry
CV4 9GU

T: +44 (0)24 7642 1213
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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

13 November 2020

Test Report: COV/1944452/2020

Dear Ms Thomas

Analysis of your sample(s) received on 30 October 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: A. Horobin

Title: CIP3 Project Manager



Report Summary

ANALYSED BY

**Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary**



Date of Issue: **13 November 2020**

Report Number: **COV/1944452/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-751291020

Number of Samples
included in this report **8**

Job Received: **30 October 2020**

Number of Test Results
included in this report **136**

Analysis Commenced: **13 November 2020**

Signed: *A. Horobin*

Name: **A. Horobin**

Date: **13 November 2020**

Title: **CIP3 Project Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/1944452/2020**
Laboratory Number: **19824278**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4212968 Surface Water R108 SWML2**
Sample Matrix: **Surface Water**
Sample Date/Time: **22 October 2020**
Sample Received: **30 October 2020**
Analysis Complete: **13 November 2020**

Issue **1**
Sample **1** of **8**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.36	ng/l	13/11/2020	Y S	SUBCON
Branched PFOS	6.82	ng/l	13/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	5.25	ng/l	13/11/2020	Y S	SUBCON
PFBA (357-22-4)	191	ng/l	13/11/2020	Y S	SUBCON
PFBS (375-73-5)	1.17	ng/l	13/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	13/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHpA (375-85-9)	19.6	ng/l	13/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHxA (307-24-4)	36.2	ng/l	13/11/2020	Y S	SUBCON
PFHxS (355-46-4)	4.99	ng/l	13/11/2020	Y S	SUBCON
PFNA (375-95-1)	1.38	ng/l	13/11/2020	Y S	SUBCON
PFOA (335-67-1)	4.81	ng/l	13/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	13/11/2020	Y S	SUBCON
PFPA (2706-90-3)	65.7	ng/l	13/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	13/11/2020	Y S	SUBCON
Total PFOS	12.1	ng/l	13/11/2020	Y S	SUBCON

Analyst Comments for 19824278:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: A I Horobin

Name: **A. Horobin**

Date: **13 November 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1944452/2020**
Laboratory Number: **19824279**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4212969 Surface Water R108 SWML4**
Sample Matrix: **Surface Water**
Sample Date/Time: **22 October 2020**
Sample Received: **30 October 2020**
Analysis Complete: **13 November 2020**

Issue **1**
Sample **2** of **8**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	47.7	ng/l	13/11/2020	Y	S	SUBCON
Branched PFOS	9.83	ng/l	13/11/2020	Y	S	SUBCON
Linear PFOS(1763-23-1)	19.4	ng/l	13/11/2020	Y	S	SUBCON
PFBA (357-22-4)	309	ng/l	13/11/2020	Y	S	SUBCON
PFBS (375-73-5)	1.17	ng/l	13/11/2020	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	13/11/2020	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	13/11/2020	Y	S	SUBCON
PFHpA (375-85-9)	17.2	ng/l	13/11/2020	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	13/11/2020	Y	S	SUBCON
PFHxA (307-24-4)	40.6	ng/l	13/11/2020	Y	S	SUBCON
PFHxS (355-46-4)	5.41	ng/l	13/11/2020	Y	S	SUBCON
PFNA (375-95-1)	2.52	ng/l	13/11/2020	Y	S	SUBCON
PFOA (335-67-1)	8.37	ng/l	13/11/2020	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	13/11/2020	Y	S	SUBCON
PFPA (2706-90-3)	73.6	ng/l	13/11/2020	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	13/11/2020	Y	S	SUBCON
Total PFOS	29.2	ng/l	13/11/2020	Y	S	SUBCON

Analyst Comments for 19824279:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: A I Horobin

Name: **A. Horobin**

Date: **13 November 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1944452/2020**

Laboratory Number: **19824280**

Issue **1**

Sample **3** of **8**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4212970 Surface Water Forest Road SWML5 A**

Sample Matrix: **Surface Water**

Sample Date/Time: **22 October 2020**

Sample Received: **30 October 2020**

Analysis Complete: **13 November 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	34.6	ng/l	13/11/2020	Y S	SUBCON
Branched PFOS	5.39	ng/l	13/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	14.1	ng/l	13/11/2020	Y S	SUBCON
PFBA (357-22-4)	212	ng/l	13/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	13/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	13/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHpA (375-85-9)	11.4	ng/l	13/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHxA (307-24-4)	28.3	ng/l	13/11/2020	Y S	SUBCON
PFHxS (355-46-4)	3.29	ng/l	13/11/2020	Y S	SUBCON
PFNA (375-95-1)	2.08	ng/l	13/11/2020	Y S	SUBCON
PFOA (335-67-1)	5.78	ng/l	13/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	13/11/2020	Y S	SUBCON
PFPA (2706-90-3)	37	ng/l	13/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	13/11/2020	Y S	SUBCON
Total PFOS	19.4	ng/l	13/11/2020	Y S	SUBCON

Analyst Comments for 19824280:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **13 November 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1944452/2020**
Laboratory Number: **19824281**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4212971 Surface Water Forest Road SWML5 B**
Sample Matrix: **Surface Water**
Sample Date/Time: **22 October 2020**
Sample Received: **30 October 2020**
Analysis Complete: **13 November 2020**

Issue **1**
Sample **4** of **8**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	65	ng/l	13/11/2020	Y S	SUBCON
Branched PFOS	399	ng/l	13/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	311	ng/l	13/11/2020	Y S	SUBCON
PFBA (357-22-4)	270	ng/l	13/11/2020	Y S	SUBCON
PFBS (375-73-5)	27.1	ng/l	13/11/2020	Y S	SUBCON
PFDA (335-76-2)	1.84	ng/l	13/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHpA (375-85-9)	145	ng/l	13/11/2020	Y S	SUBCON
PFHpS (375-92-8)	28.1	ng/l	13/11/2020	Y S	SUBCON
PFHxA (307-24-4)	149	ng/l	13/11/2020	Y S	SUBCON
PFHxS (355-46-4)	357	ng/l	13/11/2020	Y S	SUBCON
PFNA (375-95-1)	81.1	ng/l	13/11/2020	Y S	SUBCON
PFOA (335-67-1)	206	ng/l	13/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	13/11/2020	Y S	SUBCON
PFPA (2706-90-3)	104	ng/l	13/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	13/11/2020	Y S	SUBCON
Total PFOS	709	ng/l	13/11/2020	Y S	SUBCON

Analyst Comments for 19824281:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **13 November 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1944452/2020**

Laboratory Number: **19824282**

Issue **1**

Sample **5** of **8**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4212972 Surface Water Ward Outlet (Upstream of site) SWML7 B**

Sample Matrix: **Surface Water**

Sample Date/Time: **22 October 2020**

Sample Received: **30 October 2020**

Analysis Complete: **13 November 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	13/11/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	13/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	0.682	ng/l	13/11/2020	Y S	SUBCON
PFBA (357-22-4)	168	ng/l	13/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	13/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	13/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHxA (307-24-4)	<2	ng/l	13/11/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	13/11/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFOA (335-67-1)	1.03	ng/l	13/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	13/11/2020	Y S	SUBCON
PFPA (2706-90-3)	<1.5	ng/l	13/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	13/11/2020	Y S	SUBCON
Total PFOS	<1	ng/l	13/11/2020	Y S	SUBCON

Analyst Comments for 19824282:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **13 November 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1944452/2020**
Laboratory Number: **19824283**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4212973 Groundwater GWML4**
Sample Matrix: **Ground Water**
Sample Date/Time: **21 October 2020**
Sample Received: **30 October 2020**
Analysis Complete: **13 November 2020**

Issue **1**
Sample **6** of **8**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.46	ng/l	13/11/2020	Y S	SUBCON
Branched PFOS	1.68	ng/l	13/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	1.33	ng/l	13/11/2020	Y S	SUBCON
PFBA (357-22-4)	207	ng/l	13/11/2020	Y S	SUBCON
PFBS (375-73-5)	1.29	ng/l	13/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	13/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHpA (375-85-9)	1.74	ng/l	13/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHxA (307-24-4)	1.31	ng/l	13/11/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	13/11/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFOA (335-67-1)	1.8	ng/l	13/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	13/11/2020	Y S	SUBCON
PFPA (2706-90-3)	<1	ng/l	13/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	13/11/2020	Y S	SUBCON
Total PFOS	3.01	ng/l	13/11/2020	Y S	SUBCON

Analyst Comments for 19824283:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: A I Horobin

Name: **A. Horobin**

Date: **13 November 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1944452/2020**
Laboratory Number: **19824284**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4212974 Groundwater GWML 5**
Sample Matrix: **Ground Water**
Sample Date/Time: **21 October 2020**
Sample Received: **30 October 2020**
Analysis Complete: **13 November 2020**

Issue **1**
Sample **7** of **8**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.15	ng/l	13/11/2020	Y S	SUBCON
Branched PFOS	1.61	ng/l	13/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	1.19	ng/l	13/11/2020	Y S	SUBCON
PFBA (357-22-4)	178	ng/l	13/11/2020	Y S	SUBCON
PFBS (375-73-5)	1.67	ng/l	13/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	13/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHpA (375-85-9)	1.57	ng/l	13/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHxA (307-24-4)	1.77	ng/l	13/11/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	13/11/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFOA (335-67-1)	1.54	ng/l	13/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	13/11/2020	Y S	SUBCON
PFPA (2706-90-3)	<2	ng/l	13/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	13/11/2020	Y S	SUBCON
Total PFOS	2.8	ng/l	13/11/2020	Y S	SUBCON

Analyst Comments for 19824284:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 14 of 20

Signed: A I Horobin

Name: **A. Horobin**

Date: **13 November 2020**

Title: **CIP3 Project Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1944452/2020**

Laboratory Number: **19824285**

Issue **1**

Sample **8** of **8**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4213279 Surface Water Ward Outlet (SE of site) SWML7 A**

Sample Matrix: **Surface Water**

Sample Date/Time: **22 October 2020**

Sample Received: **30 October 2020**

Analysis Complete: **13 November 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	13/11/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	13/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	13/11/2020	Y S	SUBCON
PFBA (357-22-4)	157	ng/l	13/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	13/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	13/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	13/11/2020	Y S	SUBCON
PFHxA (307-24-4)	2.16	ng/l	13/11/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	13/11/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	13/11/2020	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	13/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	13/11/2020	Y S	SUBCON
PFPA (2706-90-3)	3.08	ng/l	13/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	13/11/2020	Y S	SUBCON
Total PFOS	<1	ng/l	13/11/2020	Y S	SUBCON

Analyst Comments for 19824285:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 16 of 20

Signed: A I Horobin

Name: **A. Horobin**

Date: **13 November 2020**

Title: **CIP3 Project Manager**



ANALYST COMMENTS FOR REPORT COV/1944452/2020

Issue 1

This issue replaces all previous issues

Date of Issue: 13 November 2020

Sample No	Analysis Comments
19824278	
19824279	
19824280	
19824281	
19824282	
19824283	
19824284	
19824285	

Signed: *A Horobin*

Name: **A. Horobin**

Date: **13 November 2020**

Title: **CIP3 Project Manager**



DETERMINAND COMMENTS FOR REPORT COV/1944452/2020

ISSUE 1

Date of Issue: 13 November 2020

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: <i>A Horobin</i>	Name: A. Horobin	Date: 13 November 2020
	Title: CIP3 Project Manager	

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Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

23 November 2020

Test Report: COV/1950440/2020

Dear Ms Thomas

Analysis of your sample(s) received on 13 November 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **23 November 2020**

Report Number: **COV/1950440/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-65911120

Number of Samples
included in this report **4**

Job Received: **13 November 2020**

Number of Test Results
included in this report **68**

Analysis Commenced: **20 November 2020**

Signed:

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/1950440/2020**
Laboratory Number: **19866582**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4231202 R108 SWM:2**
Sample Matrix: **Surface Water**
Sample Date/Time: **03 November 2020**
Sample Received: **13 November 2020**
Analysis Complete: **20 November 2020**

Issue **1**
Sample **1** of **4**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.17	ng/l	20/11/2020	Y S	SUBCON
Branched PFOS	2.36	ng/l	20/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	1.88	ng/l	20/11/2020	Y S	SUBCON
PFBA (357-22-4)	31.7	ng/l	20/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHpA (375-85-9)	49	ng/l	20/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHxA (307-24-4)	37.7	ng/l	20/11/2020	Y S	SUBCON
PFHxS (355-46-4)	2.63	ng/l	20/11/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFOA (335-67-1)	4.33	ng/l	20/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/11/2020	Y S	SUBCON
PFPA (2706-90-3)	49.7	ng/l	20/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/11/2020	Y S	SUBCON
Total PFOS	4.24	ng/l	20/11/2020	Y S	SUBCON

Analyst Comments for 19866582:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 2 of 12

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1950440/2020**
Laboratory Number: **19866583**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4231203 R108 SWM:3**
Sample Matrix: **Surface Water**
Sample Date/Time: **03 November 2020**
Sample Received: **13 November 2020**
Analysis Complete: **20 November 2020**

Issue **1**
Sample **2** of **4**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	20/11/2020	Y S	SUBCON
Branched PFOS	1.17	ng/l	20/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	2.66	ng/l	20/11/2020	Y S	SUBCON
PFBA (357-22-4)	2.7	ng/l	20/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHpA (375-85-9)	1.49	ng/l	20/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHxA (307-24-4)	1.74	ng/l	20/11/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	20/11/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFOA (335-67-1)	1.17	ng/l	20/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/11/2020	Y S	SUBCON
PFPA (2706-90-3)	2.7	ng/l	20/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/11/2020	Y S	SUBCON
Total PFOS	3.83	ng/l	20/11/2020	Y S	SUBCON

Analyst Comments for 19866583:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1950440/2020**
Laboratory Number: **19866584**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4231204 Forest Road SWML 5 A**
Sample Matrix: **Surface Water**
Sample Date/Time: **03 November 2020**
Sample Received: **13 November 2020**
Analysis Complete: **20 November 2020**

Issue **1**
Sample **3** of **4**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	42.6	ng/l	20/11/2020	Y S	SUBCON
Branched PFOS	4.55	ng/l	20/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	11.1	ng/l	20/11/2020	Y S	SUBCON
PFBA (357-22-4)	16.9	ng/l	20/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHpA (375-85-9)	25.4	ng/l	20/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHxA (307-24-4)	24.1	ng/l	20/11/2020	Y S	SUBCON
PFHxS (355-46-4)	4.5	ng/l	20/11/2020	Y S	SUBCON
PFNA (375-95-1)	1.5	ng/l	20/11/2020	Y S	SUBCON
PFOA (335-67-1)	5.45	ng/l	20/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/11/2020	Y S	SUBCON
PFPA (2706-90-3)	43.1	ng/l	20/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/11/2020	Y S	SUBCON
Total PFOS	15.6	ng/l	20/11/2020	Y S	SUBCON

Analyst Comments for 19866584:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1950440/2020**

Laboratory Number: **19866585**

Issue **1**

Sample **4** of **4**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4231205 Ward Outlet (Upstream of site) SWML 7 B**

Sample Matrix: **Surface Water**

Sample Date/Time: **03 November 2020**

Sample Received: **13 November 2020**

Analysis Complete: **20 November 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	44	ng/l	20/11/2020	Y S	SUBCON
Branched PFOS	5.31	ng/l	20/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	12.7	ng/l	20/11/2020	Y S	SUBCON
PFBA (357-22-4)	17.2	ng/l	20/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHpA (375-85-9)	26.4	ng/l	20/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHxA (307-24-4)	24.5	ng/l	20/11/2020	Y S	SUBCON
PFHxS (355-46-4)	4.37	ng/l	20/11/2020	Y S	SUBCON
PFNA (375-95-1)	1.57	ng/l	20/11/2020	Y S	SUBCON
PFOA (335-67-1)	5.33	ng/l	20/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/11/2020	Y S	SUBCON
PFPA (2706-90-3)	17.2	ng/l	20/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/11/2020	Y S	SUBCON
Total PFOS	18	ng/l	20/11/2020	Y S	SUBCON

Analyst Comments for 19866585:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**



ANALYST COMMENTS FOR REPORT COV/1950440/2020

Issue 1

This issue replaces
all previous issues

Date of Issue: 23 November 2020

Sample No

Analysis Comments

19866582

19866583

19866584

19866585

Signed:

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**




DETERMINAND COMMENTS FOR REPORT COV/1950440/2020

ISSUE 1

Date of Issue: 23 November 2020

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: A. Zunzunegui	Date: 23 November 2020
	Title: Dept Organic Technical Manager	

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

23 November 2020

Test Report: COV/1950440/2020

Dear Ms Thomas

Analysis of your sample(s) received on 13 November 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **23 November 2020**

Report Number: **COV/1950440/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-65911120

Number of Samples
included in this report **4**

Job Received: **13 November 2020**

Number of Test Results
included in this report **68**

Analysis Commenced: **20 November 2020**

Signed:

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 12

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1950440/2020**
Laboratory Number: **19866582**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4231202 R108 SWM:2**
Sample Matrix: **Surface Water**
Sample Date/Time: **03 November 2020**
Sample Received: **13 November 2020**
Analysis Complete: **20 November 2020**

Issue **1**
Sample **1** of **4**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.17	ng/l	20/11/2020	Y S	SUBCON
Branched PFOS	2.36	ng/l	20/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	1.88	ng/l	20/11/2020	Y S	SUBCON
PFBA (357-22-4)	31.7	ng/l	20/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHpA (375-85-9)	49	ng/l	20/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHxA (307-24-4)	37.7	ng/l	20/11/2020	Y S	SUBCON
PFHxS (355-46-4)	2.63	ng/l	20/11/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFOA (335-67-1)	4.33	ng/l	20/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/11/2020	Y S	SUBCON
PFPA (2706-90-3)	49.7	ng/l	20/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/11/2020	Y S	SUBCON
Total PFOS	4.24	ng/l	20/11/2020	Y S	SUBCON

Analyst Comments for 19866582:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1950440/2020**
Laboratory Number: **19866583**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4231203 R108 SWM:3**
Sample Matrix: **Surface Water**
Sample Date/Time: **03 November 2020**
Sample Received: **13 November 2020**
Analysis Complete: **20 November 2020**

Issue **1**
Sample **2** of **4**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	20/11/2020	Y S	SUBCON
Branched PFOS	1.17	ng/l	20/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	2.66	ng/l	20/11/2020	Y S	SUBCON
PFBA (357-22-4)	2.7	ng/l	20/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHpA (375-85-9)	1.49	ng/l	20/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHxA (307-24-4)	1.74	ng/l	20/11/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	20/11/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFOA (335-67-1)	1.17	ng/l	20/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/11/2020	Y S	SUBCON
PFPA (2706-90-3)	2.7	ng/l	20/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/11/2020	Y S	SUBCON
Total PFOS	3.83	ng/l	20/11/2020	Y S	SUBCON

Analyst Comments for 19866583:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1950440/2020**
Laboratory Number: **19866584**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4231204 Forest Road SWML 5 A**
Sample Matrix: **Surface Water**
Sample Date/Time: **03 November 2020**
Sample Received: **13 November 2020**
Analysis Complete: **20 November 2020**

Issue **1**
Sample **3** of **4**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	42.6	ng/l	20/11/2020	Y S	SUBCON
Branched PFOS	4.55	ng/l	20/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	11.1	ng/l	20/11/2020	Y S	SUBCON
PFBA (357-22-4)	16.9	ng/l	20/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHpA (375-85-9)	25.4	ng/l	20/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHxA (307-24-4)	24.1	ng/l	20/11/2020	Y S	SUBCON
PFHxS (355-46-4)	4.5	ng/l	20/11/2020	Y S	SUBCON
PFNA (375-95-1)	1.5	ng/l	20/11/2020	Y S	SUBCON
PFOA (335-67-1)	5.45	ng/l	20/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/11/2020	Y S	SUBCON
PFPA (2706-90-3)	43.1	ng/l	20/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/11/2020	Y S	SUBCON
Total PFOS	15.6	ng/l	20/11/2020	Y S	SUBCON

Analyst Comments for 19866584:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1950440/2020**

Laboratory Number: **19866585**

Issue **1**

Sample **4** of **4**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4231205 Ward Outlet (Upstream of site) SWML 7 B**

Sample Matrix: **Surface Water**

Sample Date/Time: **03 November 2020**

Sample Received: **13 November 2020**

Analysis Complete: **20 November 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	44	ng/l	20/11/2020	Y S	SUBCON
Branched PFOS	5.31	ng/l	20/11/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	12.7	ng/l	20/11/2020	Y S	SUBCON
PFBA (357-22-4)	17.2	ng/l	20/11/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/11/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHpA (375-85-9)	26.4	ng/l	20/11/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/11/2020	Y S	SUBCON
PFHxA (307-24-4)	24.5	ng/l	20/11/2020	Y S	SUBCON
PFHxS (355-46-4)	4.37	ng/l	20/11/2020	Y S	SUBCON
PFNA (375-95-1)	1.57	ng/l	20/11/2020	Y S	SUBCON
PFOA (335-67-1)	5.33	ng/l	20/11/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/11/2020	Y S	SUBCON
PFPA (2706-90-3)	17.2	ng/l	20/11/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/11/2020	Y S	SUBCON
Total PFOS	18	ng/l	20/11/2020	Y S	SUBCON

Analyst Comments for 19866585:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**



ANALYST COMMENTS FOR REPORT COV/1950440/2020

Issue 1

This issue replaces
all previous issues

Date of Issue: 23 November 2020

Sample No

Analysis Comments

19866582

19866583

19866584

19866585

Signed:

Name: **A. Zunzunegui**

Date: **23 November 2020**

Title: **Dept Organic Technical Manager**




DETERMINAND COMMENTS FOR REPORT COV/1950440/2020

ISSUE 1

Date of Issue: 23 November 2020

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: A. Zunzunegui	Date: 23 November 2020
	Title: Dept Organic Technical Manager	

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Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

18 December 2020

Test Report: COV/1963811/2020

Dear Ms Thomas

Analysis of your sample(s) received on 10 December 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: P. Johal

Title: Waste Business Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **18 December 2020**

Report Number: **COV/1963811/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-602091220

Number of Samples
included in this report **5**

Job Received: **10 December 2020**

Number of Test Results
included in this report **85**

Analysis Commenced: **18 December 2020**

Signed:

Name: **P. Johal**

Date: **18 December 2020**

Title: **Waste Business Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Page 1 of 14

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1963811/2020**
Laboratory Number: **19957441**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4272752 Surface Water R108 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **03 December 2020**
Sample Received: **10 December 2020**
Analysis Complete: **18 December 2020**

Issue **1**
Sample **1** of **5**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	9.54	ng/l	18/12/2020	Y	S	SUBCON
Branched PFOS	2.47	ng/l	18/12/2020	Y	S	SUBCON
Linear PFOS(1763-23-1)	3.05	ng/l	18/12/2020	Y	S	SUBCON
PFBA (357-22-4)	17	ng/l	18/12/2020	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	18/12/2020	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	18/12/2020	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/12/2020	Y	S	SUBCON
PFHpA (375-85-9)	21.1	ng/l	18/12/2020	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	18/12/2020	Y	S	SUBCON
PFHxA (307-24-4)	28.8	ng/l	18/12/2020	Y	S	SUBCON
PFHxS (355-46-4)	3.26	ng/l	18/12/2020	Y	S	SUBCON
PFNA (375-95-1)	1.07	ng/l	18/12/2020	Y	S	SUBCON
PFOA (335-67-1)	3.96	ng/l	18/12/2020	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/12/2020	Y	S	SUBCON
PFPA (2706-90-3)	63	ng/l	18/12/2020	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/12/2020	Y	S	SUBCON
Total PFOS	5.52	ng/l	18/12/2020	Y	S	SUBCON

Analyst Comments for 19957441:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **P. Johal**

Date: **18 December 2020**

Title: **Waste Business Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1963811/2020**
Laboratory Number: **19957442**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4272753 Surface Water Forest Road SWML 5 A**
Sample Matrix: **Surface Water**
Sample Date/Time: **03 December 2020**
Sample Received: **10 December 2020**
Analysis Complete: **18 December 2020**

Issue **1**
Sample **2** of **5**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	50	ng/l	18/12/2020	Y S	SUBCON
Branched PFOS	15.8	ng/l	18/12/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	20.7	ng/l	18/12/2020	Y S	SUBCON
PFBA (357-22-4)	23.6	ng/l	18/12/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	18/12/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	18/12/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/12/2020	Y S	SUBCON
PFHpA (375-85-9)	44.8	ng/l	18/12/2020	Y S	SUBCON
PFHpS (375-92-8)	1.53	ng/l	18/12/2020	Y S	SUBCON
PFHxA (307-24-4)	34.8	ng/l	18/12/2020	Y S	SUBCON
PFHxS (355-46-4)	17.9	ng/l	18/12/2020	Y S	SUBCON
PFNA (375-95-1)	5.07	ng/l	18/12/2020	Y S	SUBCON
PFOA (335-67-1)	15.3	ng/l	18/12/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/12/2020	Y S	SUBCON
PFPA (2706-90-3)	67.9	ng/l	18/12/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/12/2020	Y S	SUBCON
Total PFOS	36.5	ng/l	18/12/2020	Y S	SUBCON

Analyst Comments for 19957442:

No Analyst Comment

This issue replaces all previous issues

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Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **P. Johal**

Date: **18 December 2020**

Title: **Waste Business Manager**

Certificate of Analysis

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Report Number: **COV/1963811/2020**

Laboratory Number: **19957443**

Issue **1**

Sample **3** of **5**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4272754 Surface Water Manhole (Hangars) SWML 5 B**

Sample Matrix: **Surface Water**

Sample Date/Time: **03 December 2020**

Sample Received: **10 December 2020**

Analysis Complete: **18 December 2020**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	5.19	ng/l	18/12/2020	Y S	SUBCON
Branched PFOS	19.2	ng/l	18/12/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	32.8	ng/l	18/12/2020	Y S	SUBCON
PFBA (357-22-4)	<40	ng/l	18/12/2020	Y S	SUBCON
PFBS (375-73-5)	1.28	ng/l	18/12/2020	Y S	SUBCON
PFDA (335-76-2)	1.29	ng/l	18/12/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/12/2020	Y S	SUBCON
PFHpA (375-85-9)	94.6	ng/l	18/12/2020	Y S	SUBCON
PFHpS (375-92-8)	1.23	ng/l	18/12/2020	Y S	SUBCON
PFHxA (307-24-4)	53.1	ng/l	18/12/2020	Y S	SUBCON
PFHxS (355-46-4)	31.7	ng/l	18/12/2020	Y S	SUBCON
PFNA (375-95-1)	8.34	ng/l	18/12/2020	Y S	SUBCON
PFOA (335-67-1)	30.9	ng/l	18/12/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/12/2020	Y S	SUBCON
PFPA (2706-90-3)	116	ng/l	18/12/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/12/2020	Y S	SUBCON
Total PFOS	52	ng/l	18/12/2020	Y S	SUBCON

Analyst Comments for 19957443:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'P. Johal', written over a horizontal line.

Name: **P. Johal**

Date: **18 December 2020**

Title: **Waste Business Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1963811/2020**
Laboratory Number: **19957444**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4272755 Ground Water R108 GWML 4**
Sample Matrix: **Ground Water**
Sample Date/Time: **03 December 2020**
Sample Received: **10 December 2020**
Analysis Complete: **18 December 2020**

Issue **1**
Sample **4** of **5**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	18/12/2020	Y S	SUBCON
Branched PFOS	<1	ng/l	18/12/2020	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	18/12/2020	Y S	SUBCON
PFBA (357-22-4)	5.6	ng/l	18/12/2020	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	18/12/2020	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	18/12/2020	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/12/2020	Y S	SUBCON
PFHpA (375-85-9)	2.39	ng/l	18/12/2020	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	18/12/2020	Y S	SUBCON
PFHxA (307-24-4)	1.21	ng/l	18/12/2020	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	18/12/2020	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	18/12/2020	Y S	SUBCON
PFOA (335-67-1)	1.22	ng/l	18/12/2020	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/12/2020	Y S	SUBCON
PFPA (2706-90-3)	<1	ng/l	18/12/2020	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/12/2020	Y S	SUBCON
Total PFOS	<1	ng/l	18/12/2020	Y S	SUBCON

Analyst Comments for 19957444:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **P. Johal**

Date: **18 December 2020**

Title: **Waste Business Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1963811/2020**
Laboratory Number: **19957445**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4272756 Ground Water R108 GWML 5**
Sample Matrix: **Ground Water**
Sample Date/Time: **03 December 2020**
Sample Received: **10 December 2020**
Analysis Complete: **18 December 2020**

Issue **1**
Sample **5** of **5**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	2.37	ng/l	18/12/2020	Y	S	SUBCON
Branched PFOS	<1	ng/l	18/12/2020	Y	S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	18/12/2020	Y	S	SUBCON
PFBA (357-22-4)	12.2	ng/l	18/12/2020	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	18/12/2020	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	18/12/2020	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	18/12/2020	Y	S	SUBCON
PFHpA (375-85-9)	3.94	ng/l	18/12/2020	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	18/12/2020	Y	S	SUBCON
PFHxA (307-24-4)	3.17	ng/l	18/12/2020	Y	S	SUBCON
PFHxS (355-46-4)	<1	ng/l	18/12/2020	Y	S	SUBCON
PFNA (375-95-1)	<1	ng/l	18/12/2020	Y	S	SUBCON
PFOA (335-67-1)	1.27	ng/l	18/12/2020	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	18/12/2020	Y	S	SUBCON
PFPA (2706-90-3)	5.54	ng/l	18/12/2020	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	18/12/2020	Y	S	SUBCON
Total PFOS	<1	ng/l	18/12/2020	Y	S	SUBCON

Analyst Comments for 19957445:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **P. Johal**

Date: **18 December 2020**

Title: **Waste Business Manager**



ANALYST COMMENTS FOR REPORT COV/1963811/2020

Issue 1

This issue replaces
all previous issues

Date of Issue: **18 December 2020**

Sample No	Analysis Comments
19957441	
19957442	
19957443	
19957444	
19957445	

Signed:

Name: **P. Johal**

Date: **18 December 2020**

Title: **Waste Business Manager**




DETERMINAND COMMENTS FOR REPORT COV/1963811/2020

ISSUE 1

Date of Issue: 18 December 2020

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: P. Johal	Date: 18 December 2020
	Title: Waste Business Manager	

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ALS Environmental Ltd

Unit 11
Silkwood Park
Janes Hill
Off Albert Drive
Wakefield
WF5 9TG

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

22 January 2021

Test Report: WAK/1975925/2021

Dear Ms Thomas

Analysis of your sample(s) received on 14 January 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: M. Forster

Title: Deputy Organic Manager



Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **22 January 2021**

Report Number: **WAK/1975925/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-697130121

Number of Samples
included in this report **6**

Job Received: **14 January 2021**

Number of Test Results
included in this report **102**

Analysis Commenced: **21 January 2021**

Signed:

Name: **M. Forster**

Date: **22 January 2021**

Title: **Deputy Organic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Page 1 of 16

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1975925/2021**
Laboratory Number: **20043738**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4310396 - R108 - SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 January 2021**
Sample Received: **14 January 2021**
Analysis Complete: **22 January 2021**

Issue **1**
Sample **1** of **6**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	23.8	ng/l	21/01/2021	Y S	SUBCON
Branched PFOS	1.42	ng/l	21/01/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.1	ng/l	21/01/2021	Y S	SUBCON
PFBA (357-22-4)	8.06	ng/l	21/01/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	21/01/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	21/01/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	21/01/2021	Y S	SUBCON
PFHpA (375-85-9)	7.78	ng/l	21/01/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	21/01/2021	Y S	SUBCON
PFHxA (307-24-4)	7.96	ng/l	21/01/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	21/01/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	21/01/2021	Y S	SUBCON
PFOA (335-67-1)	2.74	ng/l	21/01/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	21/01/2021	Y S	SUBCON
PFPA (2706-90-3)	12.8	ng/l	21/01/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	21/01/2021	Y S	SUBCON
Total PFOS	5.52	ng/l	21/01/2021	Y S	SUBCON

Analyst Comments for 20043738:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 2 of 16

Signed: 

Name: **M. Forster**

Date: **22 January 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1975925/2021**
Laboratory Number: **20043739**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4310397 - R108 - SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 January 2021**
Sample Received: **14 January 2021**
Analysis Complete: **22 January 2021**

Issue **1**
Sample **2** of **6**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	23.2	ng/l	21/01/2021	Y	S	SUBCON
Branched PFOS	4.59	ng/l	21/01/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	4.13	ng/l	21/01/2021	Y	S	SUBCON
PFBA (357-22-4)	18.5	ng/l	21/01/2021	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFHpA (375-85-9)	21.3	ng/l	21/01/2021	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFHxA (307-24-4)	28.2	ng/l	21/01/2021	Y	S	SUBCON
PFHxS (355-46-4)	3.81	ng/l	21/01/2021	Y	S	SUBCON
PFNA (375-95-1)	1.07	ng/l	21/01/2021	Y	S	SUBCON
PFOA (335-67-1)	5.13	ng/l	21/01/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	21/01/2021	Y	S	SUBCON
PFFPA (2706-90-3)	59.6	ng/l	21/01/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	21/01/2021	Y	S	SUBCON
Total PFOS	8.73	ng/l	21/01/2021	Y	S	SUBCON

Analyst Comments for 20043739:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **22 January 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1975925/2021**
Laboratory Number: **20043740**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4310398 - Forest Road - SWML 5 A**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 January 2021**
Sample Received: **14 January 2021**
Analysis Complete: **22 January 2021**

Issue **1**
Sample **3** of **6**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	52.6	ng/l	21/01/2021	Y	S	SUBCON
Branched PFOS	24.8	ng/l	21/01/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	25.7	ng/l	21/01/2021	Y	S	SUBCON
PFBA (357-22-4)	24.1	ng/l	21/01/2021	Y	S	SUBCON
PFBS (375-73-5)	1.04	ng/l	21/01/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFHpA (375-85-9)	46.3	ng/l	21/01/2021	Y	S	SUBCON
PFHpS (375-92-8)	2.22	ng/l	21/01/2021	Y	S	SUBCON
PFHxA (307-24-4)	32.3	ng/l	21/01/2021	Y	S	SUBCON
PFHxS (355-46-4)	28.3	ng/l	21/01/2021	Y	S	SUBCON
PFNA (375-95-1)	7.91	ng/l	21/01/2021	Y	S	SUBCON
PFOA (335-67-1)	22.1	ng/l	21/01/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	21/01/2021	Y	S	SUBCON
PFPA (2706-90-3)	57.7	ng/l	21/01/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	21/01/2021	Y	S	SUBCON
Total PFOS	50.5	ng/l	21/01/2021	Y	S	SUBCON

Analyst Comments for 20043740:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 6 of 16

Signed: 

Name: **M. Forster**

Date: **22 January 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1975925/2021**
Laboratory Number: **20043741**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4310399 - Hangars Manhole - SWML 5 B**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 January 2021**
Sample Received: **14 January 2021**
Analysis Complete: **22 January 2021**

Issue **1**
Sample **4** of **6**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	54.2	ng/l	21/01/2021	Y	S	SUBCON
Branched PFOS	697	ng/l	21/01/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	702	ng/l	21/01/2021	Y	S	SUBCON
PFBA (357-22-4)	109	ng/l	21/01/2021	Y	S	SUBCON
PFBS (375-73-5)	22.6	ng/l	21/01/2021	Y	S	SUBCON
PFDA (335-76-2)	3.67	ng/l	21/01/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFHpA (375-85-9)	360	ng/l	21/01/2021	Y	S	SUBCON
PFHpS (375-92-8)	63.5	ng/l	21/01/2021	Y	S	SUBCON
PFHxA (307-24-4)	246	ng/l	21/01/2021	Y	S	SUBCON
PFHxS (355-46-4)	621	ng/l	21/01/2021	Y	S	SUBCON
PFNA (375-95-1)	180	ng/l	21/01/2021	Y	S	SUBCON
PFOA (335-67-1)	462	ng/l	21/01/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	21/01/2021	Y	S	SUBCON
PFFPA (2706-90-3)	266	ng/l	21/01/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	21/01/2021	Y	S	SUBCON
Total PFOS	1400	ng/l	21/01/2021	Y	S	SUBCON

Analyst Comments for 20043741:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **22 January 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1975925/2021**
Laboratory Number: **20043742**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4310400 - R108 - GWML 4**
Sample Matrix: **Ground Water**
Sample Date/Time: **06 January 2021**
Sample Received: **14 January 2021**
Analysis Complete: **22 January 2021**

Issue **1**
Sample **5** of **6**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	<1	ng/l	21/01/2021	Y	S	SUBCON
Branched PFOS	<1	ng/l	21/01/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	0.68	ng/l	21/01/2021	Y	S	SUBCON
PFBA (357-22-4)	8.82	ng/l	21/01/2021	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFHpA (375-85-9)	2.72	ng/l	21/01/2021	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFHxA (307-24-4)	2.86	ng/l	21/01/2021	Y	S	SUBCON
PFHxS (355-46-4)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFNA (375-95-1)	<1	ng/l	21/01/2021	Y	S	SUBCON
PFOA (335-67-1)	1.88	ng/l	21/01/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	21/01/2021	Y	S	SUBCON
PFPA (2706-90-3)	4.61	ng/l	21/01/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	21/01/2021	Y	S	SUBCON
Total PFOS	<1	ng/l	21/01/2021	Y	S	SUBCON

Analyst Comments for 20043742:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **22 January 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1975925/2021**
Laboratory Number: **20043743**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4310401 - R108 - GWML 5**
Sample Matrix: **Ground Water**
Sample Date/Time: **06 January 2021**
Sample Received: **14 January 2021**
Analysis Complete: **22 January 2021**

Issue **1**
Sample **6** of **6**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	21/01/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	21/01/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	21/01/2021	Y S	SUBCON
PFBA (357-22-4)	<2.5	ng/l	21/01/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	21/01/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	21/01/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	21/01/2021	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	21/01/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	21/01/2021	Y S	SUBCON
PFHxA (307-24-4)	<1	ng/l	21/01/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	21/01/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	21/01/2021	Y S	SUBCON
PFOA (335-67-1)	1.02	ng/l	21/01/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	21/01/2021	Y S	SUBCON
PFPA (2706-90-3)	<1	ng/l	21/01/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	21/01/2021	Y S	SUBCON
Total PFOS	<1	ng/l	21/01/2021	Y S	SUBCON

Analyst Comments for 20043743:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **22 January 2021**

Title: **Deputy Organic Manager**



ANALYST COMMENTS FOR REPORT WAK/1975925/2021

Issue 1

This issue replaces
all previous issues

Date of Issue: **22 January 2021**

Sample No	Analysis Comments
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20043738


20043739

20043740

20043741

20043742

20043743

Signed: 

Name: **M. Forster**

Date: **22 January 2021**

Title: **Deputy Organic Manager**




DETERMINAND COMMENTS FOR REPORT WAK/1975925/2021

Date of Issue: 22 January 2021

ISSUE 1

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: M. Forster	Date: 22 January 2021
	Title: Deputy Organic Manager	

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ALS Environmental Ltd

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F: +44 (0)24 7685 6575

www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

15 February 2021

Test Report: COV/1982755/2021

Dear Ms Thomas

Analysis of your sample(s) received on 28 January 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

D. Lewis

Title:

Technical Inorganic Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **15 February 2021**

Report Number: **COV/1982755/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RFBC-528270121

Number of Samples
included in this report **5**

Job Received: **28 January 2021**

Number of Test Results
included in this report **85**

Analysis Commenced: **15 February 2021**

Signed:

Name: **D. Lewis**

Date: **15 February 2021**

Title: **Technical Inorganic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/1982755/2021**
Laboratory Number: **20087857**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4329143 Surface Water R108 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 January 2021**
Sample Received: **28 January 2021**
Analysis Complete: **15 February 2021**

Issue **1**
Sample **1** of **5**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.06	ng/l	15/02/2021	Y S	SUBCON
Branched PFOS	1.89	ng/l	15/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.19	ng/l	15/02/2021	Y S	SUBCON
PFBA (357-22-4)	16.2	ng/l	15/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/02/2021	Y S	SUBCON
PFHpA (375-85-9)	19.5	ng/l	15/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/02/2021	Y S	SUBCON
PFHxA (307-24-4)	15	ng/l	15/02/2021	Y S	SUBCON
PFHxS (355-46-4)	1.96	ng/l	15/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	15/02/2021	Y S	SUBCON
PFOA (335-67-1)	2.84	ng/l	15/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/02/2021	Y S	SUBCON
PFPA (2706-90-3)	27	ng/l	15/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/02/2021	Y S	SUBCON
Total PFOS	3.08	ng/l	15/02/2021	Y S	SUBCON

Analyst Comments for 20087857:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **D. Lewis**

Date: **15 February 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1982755/2021**
Laboratory Number: **20087858**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4329144 Surface Water R108 SWML4**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 January 2021**
Sample Received: **28 January 2021**
Analysis Complete: **15 February 2021**

Issue **1**
Sample **2** of **5**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	17.5	ng/l	15/02/2021	Y S	SUBCON
Branched PFOS	2.3	ng/l	15/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.36	ng/l	15/02/2021	Y S	SUBCON
PFBA (357-22-4)	14.1	ng/l	15/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/02/2021	Y S	SUBCON
PFHpA (375-85-9)	15.6	ng/l	15/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/02/2021	Y S	SUBCON
PFHxA (307-24-4)	14.6	ng/l	15/02/2021	Y S	SUBCON
PFHxS (355-46-4)	1.62	ng/l	15/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	15/02/2021	Y S	SUBCON
PFOA (335-67-1)	3.83	ng/l	15/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/02/2021	Y S	SUBCON
PFPA (2706-90-3)	33.4	ng/l	15/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/02/2021	Y S	SUBCON
Total PFOS	6.66	ng/l	15/02/2021	Y S	SUBCON

Analyst Comments for 20087858:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **D. Lewis**

Date: **15 February 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1982755/2021**
Laboratory Number: **20087859**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4329145 Surface Water Forest Road SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 January 2021**
Sample Received: **28 January 2021**
Analysis Complete: **15 February 2021**

Issue **1**
Sample **3** of **5**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	35.4	ng/l	15/02/2021	Y S	SUBCON
Branched PFOS	32.1	ng/l	15/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	43.3	ng/l	15/02/2021	Y S	SUBCON
PFBA (357-22-4)	20.9	ng/l	15/02/2021	Y S	SUBCON
PFBS (375-73-5)	1.14	ng/l	15/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/02/2021	Y S	SUBCON
PFHpA (375-85-9)	36.5	ng/l	15/02/2021	Y S	SUBCON
PFHpS (375-92-8)	3.3	ng/l	15/02/2021	Y S	SUBCON
PFHxA (307-24-4)	25.7	ng/l	15/02/2021	Y S	SUBCON
PFHxS (355-46-4)	27.8	ng/l	15/02/2021	Y S	SUBCON
PFNA (375-95-1)	12.6	ng/l	15/02/2021	Y S	SUBCON
PFOA (335-67-1)	25.7	ng/l	15/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/02/2021	Y S	SUBCON
PFPA (2706-90-3)	39.9	ng/l	15/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/02/2021	Y S	SUBCON
Total PFOS	75.4	ng/l	15/02/2021	Y S	SUBCON

Analyst Comments for 20087859:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 February 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1982755/2021**

Laboratory Number: **20087860**

Issue **1**

Sample **4** of **5**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4329146 Surface Water Hangars Manhole SWML 5B**

Sample Matrix: **Surface Water**

Sample Date/Time: **21 January 2021**

Sample Received: **28 January 2021**

Analysis Complete: **15 February 2021**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	23.5	ng/l	15/02/2021	Y S	SUBCON
Branched PFOS	5.4	ng/l	15/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	12.5	ng/l	15/02/2021	Y S	SUBCON
PFBA (357-22-4)	60.2	ng/l	15/02/2021	Y S	SUBCON
PFBS (375-73-5)	5.07	ng/l	15/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/02/2021	Y S	SUBCON
PFHpA (375-85-9)	198	ng/l	15/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/02/2021	Y S	SUBCON
PFHxA (307-24-4)	105	ng/l	15/02/2021	Y S	SUBCON
PFHxS (355-46-4)	25.4	ng/l	15/02/2021	Y S	SUBCON
PFNA (375-95-1)	5.39	ng/l	15/02/2021	Y S	SUBCON
PFOA (335-67-1)	24.1	ng/l	15/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/02/2021	Y S	SUBCON
PFPA (2706-90-3)	202	ng/l	15/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/02/2021	Y S	SUBCON
Total PFOS	17.9	ng/l	15/02/2021	Y S	SUBCON

Analyst Comments for 20087860:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 February 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1982755/2021**

Laboratory Number: **20087861**

Issue **1**

Sample **5** of **5**

Sample Source: **ALS Life Sciences (Ireland)**

Sample Point Description: **ALS Clonmel Raw**

Sample Description: **4329147 Surface Water Hangars Manhole SWML 57**

Sample Matrix: **Surface Water**

Sample Date/Time: **21 January 2021**

Sample Received: **28 January 2021**

Analysis Complete: **15 February 2021**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	15/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	15/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.933	ng/l	15/02/2021	Y S	SUBCON
PFBA (357-22-4)	5.85	ng/l	15/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/02/2021	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	15/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/02/2021	Y S	SUBCON
PFHxA (307-24-4)	3.55	ng/l	15/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	15/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	15/02/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	15/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/02/2021	Y S	SUBCON
PFPA (2706-90-3)	5.8	ng/l	15/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/02/2021	Y S	SUBCON
Total PFOS	<1	ng/l	15/02/2021	Y S	SUBCON

Analyst Comments for 20087861:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 February 2021**

Title: **Technical Inorganic Manager**



ANALYST COMMENTS FOR REPORT COV/1982755/2021

Issue 1

This issue replaces
all previous issues

Date of Issue: **15 February 2021**

Sample No	Analysis Comments
20087857	
20087858	
20087859	
20087860	
20087861	

Signed: *D. Lewis*

Name: **D. Lewis**

Date: **15 February 2021**

Title: **Technical Inorganic Manager**




DETERMINAND COMMENTS FOR REPORT COV/1982755/2021

ISSUE 1

Date of Issue: 15 February 2021

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: D. Lewis	Date: 15 February 2021
	Title: Technical Inorganic Manager	

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Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

10 February 2021

Test Report: COV/1983463/2021

Dear Ms Thomas

Analysis of your sample(s) received on 29 January 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **10 February 2021**

Report Number: **COV/1983463/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-604280121

Number of Samples
included in this report **2**

Job Received: **29 January 2021**

Number of Test Results
included in this report **34**

Analysis Commenced: **10 February 2021**

Signed:

Name: **A. Zunzunegui**

Date: **10 February 2021**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Page 1 of 8

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1983463/2021**
Laboratory Number: **20092053**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4331332 Ground Water R108 GWML 4**
Sample Matrix: **Ground Water**
Sample Date/Time: **22 January 2021**
Sample Received: **29 January 2021**
Analysis Complete: **10 February 2021**

Issue **1**
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	10/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	10/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	10/02/2021	Y S	SUBCON
PFBA (357-22-4)	<5	ng/l	10/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	10/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/02/2021	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	10/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/02/2021	Y S	SUBCON
PFHxA (307-24-4)	<1	ng/l	10/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	10/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	10/02/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	10/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/02/2021	Y S	SUBCON
PFPA (2706-90-3)	<1	ng/l	10/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/02/2021	Y S	SUBCON
Total PFOS	<1	ng/l	10/02/2021	Y S	SUBCON

Analyst Comments for 20092053:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 2 of 8

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **10 February 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1983463/2021**
Laboratory Number: **20092054**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4331333 Ground Water R108 GWML 5**
Sample Matrix: **Ground Water**
Sample Date/Time: **22 January 2021**
Sample Received: **29 January 2021**
Analysis Complete: **10 February 2021**

Issue **1**
Sample **2** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	10/02/2021	Y S	SUBCON
Branched PFOS	1.78	ng/l	10/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.62	ng/l	10/02/2021	Y S	SUBCON
PFBA (357-22-4)	12.3	ng/l	10/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	10/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	10/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	10/02/2021	Y S	SUBCON
PFHpA (375-85-9)	5.76	ng/l	10/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	10/02/2021	Y S	SUBCON
PFHxA (307-24-4)	3.84	ng/l	10/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	10/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	10/02/2021	Y S	SUBCON
PFOA (335-67-1)	1.95	ng/l	10/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	10/02/2021	Y S	SUBCON
PFPA (2706-90-3)	2.49	ng/l	10/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	10/02/2021	Y S	SUBCON
Total PFOS	4.4	ng/l	10/02/2021	Y S	SUBCON

Analyst Comments for 20092054:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 4 of 8

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **10 February 2021**

Title: **Dept Organic Technical Manager**



ANALYST COMMENTS FOR REPORT COV/1983463/2021

Issue 1

This issue replaces
all previous issues

Date of Issue: **10 February 2021**

Sample No

Analysis Comments

20092053

20092054

Signed:

Name: **A. Zunzunegui**

Date: **10 February 2021**

Title: **Dept Organic Technical Manager**




DETERMINAND COMMENTS FOR REPORT COV/1983463/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 10 February 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: A. Zunzunegui	Date: 10 February 2021
	Title: Dept Organic Technical Manager	

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ALS Environmental Ltd

Unit 11
Silkwood Park
Janes Hill
Off Albert Drive
Wakefield
WF5 9TG

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Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

12 February 2021

Test Report: WAK/1984205/2021

Dear Ms Thomas

Analysis of your sample(s) received on 01 February 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

C. Ulph

Title:

Micro/Crypto/Logistics Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **12 February 2021**

Report Number: **WAK/1984205/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-521290121

Number of Samples
included in this report **11**

Job Received: **01 February 2021**

Number of Test Results
included in this report **187**

Analysis Commenced: **11 February 2021**

Signed:

Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Page 1 of 26

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1984205/2021**
Laboratory Number: **20097614**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333287 - P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **1** of **11**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.22	ng/l	11/02/2021	Y S	SUBCON
Branched PFOS	2.14	ng/l	11/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.42	ng/l	11/02/2021	Y S	SUBCON
PFBA (357-22-4)	19.2	ng/l	11/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpA (375-85-9)	19.5	ng/l	11/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHxA (307-24-4)	19.6	ng/l	11/02/2021	Y S	SUBCON
PFHxS (355-46-4)	1.56	ng/l	11/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFOA (335-67-1)	2.59	ng/l	11/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y S	SUBCON
PFPA (2706-90-3)	24.6	ng/l	11/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y S	SUBCON
Total PFOS	3.56	ng/l	11/02/2021	Y S	SUBCON

Analyst Comments for 20097614:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1984205/2021**
Laboratory Number: **20097615**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333288 - P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **2** of **11**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/02/2021	Y S	SUBCON
Branched PFOS	1.67	ng/l	11/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.964	ng/l	11/02/2021	Y S	SUBCON
PFBA (357-22-4)	13.2	ng/l	11/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpA (375-85-9)	12.7	ng/l	11/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHxA (307-24-4)	15.7	ng/l	11/02/2021	Y S	SUBCON
PFHxS (355-46-4)	2.73	ng/l	11/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFOA (335-67-1)	2.44	ng/l	11/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y S	SUBCON
PFFPA (2706-90-3)	26.7	ng/l	11/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y S	SUBCON
Total PFOS	2.63	ng/l	11/02/2021	Y S	SUBCON

Analyst Comments for 20097615:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1984205/2021**
Laboratory Number: **20097616**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333289 - P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **3** of **11**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/02/2021	Y S	SUBCON
Branched PFOS	1.3	ng/l	11/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.4	ng/l	11/02/2021	Y S	SUBCON
PFBA (357-22-4)	9.73	ng/l	11/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpA (375-85-9)	8.85	ng/l	11/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHxA (307-24-4)	8.41	ng/l	11/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFOA (335-67-1)	1.42	ng/l	11/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y S	SUBCON
PFPA (2706-90-3)	13.1	ng/l	11/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y S	SUBCON
Total PFOS	2.7	ng/l	11/02/2021	Y S	SUBCON

Analyst Comments for 20097616:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1984205/2021**
Laboratory Number: **20097617**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333290 - P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **4** of **11**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.24	ng/l	11/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	11/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.74	ng/l	11/02/2021	Y S	SUBCON
PFBA (357-22-4)	20.5	ng/l	11/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpA (375-85-9)	12.4	ng/l	11/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHxA (307-24-4)	27.3	ng/l	11/02/2021	Y S	SUBCON
PFHxS (355-46-4)	1.05	ng/l	11/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFOA (335-67-1)	1.24	ng/l	11/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y S	SUBCON
PFPA (2706-90-3)	49.2	ng/l	11/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y S	SUBCON
Total PFOS	1.74	ng/l	11/02/2021	Y S	SUBCON

Analyst Comments for 20097617:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1984205/2021**
Laboratory Number: **20097618**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333291 - SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **5** of **11**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	14.9	ng/l	11/02/2021	Y S	SUBCON
Branched PFOS	3.12	ng/l	11/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.07	ng/l	11/02/2021	Y S	SUBCON
PFBA (357-22-4)	14.8	ng/l	11/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpA (375-85-9)	19.3	ng/l	11/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHxA (307-24-4)	22.2	ng/l	11/02/2021	Y S	SUBCON
PFHxS (355-46-4)	8.7	ng/l	11/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFOA (335-67-1)	4.24	ng/l	11/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y S	SUBCON
PFPA (2706-90-3)	46.1	ng/l	11/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y S	SUBCON
Total PFOS	7.19	ng/l	11/02/2021	Y S	SUBCON

Analyst Comments for 20097618:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1984205/2021**
Laboratory Number: **20097619**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333292 - SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **6** of **11**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	35.2	ng/l	11/02/2021	Y	S	SUBCON
Branched PFOS	38.5	ng/l	11/02/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	46.7	ng/l	11/02/2021	Y	S	SUBCON
PFBA (357-22-4)	23.9	ng/l	11/02/2021	Y	S	SUBCON
PFBS (375-73-5)	1.27	ng/l	11/02/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/02/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y	S	SUBCON
PFHpA (375-85-9)	56.5	ng/l	11/02/2021	Y	S	SUBCON
PFHpS (375-92-8)	3.52	ng/l	11/02/2021	Y	S	SUBCON
PFHxA (307-24-4)	35.2	ng/l	11/02/2021	Y	S	SUBCON
PFHxS (355-46-4)	43.3	ng/l	11/02/2021	Y	S	SUBCON
PFNA (375-95-1)	15.9	ng/l	11/02/2021	Y	S	SUBCON
PFOA (335-67-1)	36.4	ng/l	11/02/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y	S	SUBCON
PFFPA (2706-90-3)	55.8	ng/l	11/02/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y	S	SUBCON
Total PFOS	85.2	ng/l	11/02/2021	Y	S	SUBCON

Analyst Comments for 20097619:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1984205/2021**
Laboratory Number: **20097620**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333293 - SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **7** of **11**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	43.2	ng/l	11/02/2021	Y S	SUBCON
Branched PFOS	299	ng/l	11/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	318	ng/l	11/02/2021	Y S	SUBCON
PFBA (357-22-4)	79.2	ng/l	11/02/2021	Y S	SUBCON
PFBS (375-73-5)	10.3	ng/l	11/02/2021	Y S	SUBCON
PFDA (335-76-2)	1.63	ng/l	11/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpA (375-85-9)	222	ng/l	11/02/2021	Y S	SUBCON
PFHpS (375-92-8)	32	ng/l	11/02/2021	Y S	SUBCON
PFHxA (307-24-4)	154	ng/l	11/02/2021	Y S	SUBCON
PFHxS (355-46-4)	339	ng/l	11/02/2021	Y S	SUBCON
PFNA (375-95-1)	136	ng/l	11/02/2021	Y S	SUBCON
PFOA (335-67-1)	264	ng/l	11/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y S	SUBCON
PFPA (2706-90-3)	176	ng/l	11/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y S	SUBCON
Total PFOS	617	ng/l	11/02/2021	Y S	SUBCON

Analyst Comments for 20097620:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1984205/2021**
Laboratory Number: **20097621**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333294 - SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **8** of **11**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	11/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	11/02/2021	Y S	SUBCON
PFBA (357-22-4)	3.63	ng/l	11/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHxA (307-24-4)	3.03	ng/l	11/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	11/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y S	SUBCON
PFPA (2706-90-3)	5.45	ng/l	11/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y S	SUBCON
Total PFOS	<1	ng/l	11/02/2021	Y S	SUBCON

Analyst Comments for 20097621:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1984205/2021**
Laboratory Number: **20097622**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333295 - SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **26 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **9** of **11**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	11/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	11/02/2021	Y S	SUBCON
PFBA (357-22-4)	3.37	ng/l	11/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpA (375-85-9)	1.01	ng/l	11/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHxA (307-24-4)	1.34	ng/l	11/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFOA (335-67-1)	0.781	ng/l	11/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y S	SUBCON
PFPA (2706-90-3)	2.42	ng/l	11/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y S	SUBCON
Total PFOS	<1	ng/l	11/02/2021	Y S	SUBCON

Analyst Comments for 20097622:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1984205/2021**
Laboratory Number: **20097623**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333296 - GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **27 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **10** of **11**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	11/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	11/02/2021	Y S	SUBCON
PFBA (357-22-4)	4.48	ng/l	11/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpA (375-85-9)	1.36	ng/l	11/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHxA (307-24-4)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	11/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y S	SUBCON
PFPA (2706-90-3)	1.1	ng/l	11/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y S	SUBCON
Total PFOS	<1	ng/l	11/02/2021	Y S	SUBCON

Analyst Comments for 20097623:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1984205/2021**
Laboratory Number: **20097624**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4333297 - GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **27 January 2021**
Sample Received: **01 February 2021**
Analysis Complete: **12 February 2021**

Issue **1**
Sample **11** of **11**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	11/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	11/02/2021	Y S	SUBCON
PFBA (357-22-4)	7.23	ng/l	11/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHpA (375-85-9)	3.97	ng/l	11/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/02/2021	Y S	SUBCON
PFHxA (307-24-4)	2.68	ng/l	11/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/02/2021	Y S	SUBCON
PFOA (335-67-1)	1.26	ng/l	11/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/02/2021	Y S	SUBCON
PFPA (2706-90-3)	2.71	ng/l	11/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/02/2021	Y S	SUBCON
Total PFOS	<1	ng/l	11/02/2021	Y S	SUBCON

Analyst Comments for 20097624:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/1984205/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **12 February 2021**

Sample No	Analysis Comments
20097614	
20097615	
20097616	
20097617	
20097618	
20097619	
20097620	
20097621	
20097622	
20097623	
20097624	

Signed:

Name: **C. Ulph**

Date: **12 February 2021**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/1984205/2021

Date of Issue: 12 February 2021

ISSUE 1

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 12 February 2021
	Title: Micro/Crypto/Logistics Manager	

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

01 March 2021

Test Report: WAK/1992533/2021

Dear Ms Thomas

Analysis of your sample(s) received on 17 February 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

C. Ulph

Title:

Micro/Crypto/Logistics Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **01 March 2021**

Report Number: **WAK/1992533/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-814160221

Number of Samples
included in this report **10**

Job Received: **17 February 2021**

Number of Test Results
included in this report **170**

Analysis Commenced: **26 February 2021**

Signed:

Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1992533/2021**
Laboratory Number: **20150374**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4357028 Surface Water - P2 - 05.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **05 February 2021**
Sample Received: **17 February 2021**
Analysis Complete: **01 March 2021**

Issue **1**
Sample **1** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.62	ng/l	26/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	26/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.783	ng/l	26/02/2021	Y S	SUBCON
PFBA (357-22-4)	15.2	ng/l	26/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpA (375-85-9)	5.39	ng/l	26/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHxA (307-24-4)	6.16	ng/l	26/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	26/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFOA (335-67-1)	1.31	ng/l	26/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	26/02/2021	Y S	SUBCON
PFPA (2706-90-3)	13.4	ng/l	26/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	26/02/2021	Y S	SUBCON
Total PFOS	<1	ng/l	26/02/2021	Y S	SUBCON

Analyst Comments for 20150374:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1992533/2021**
Laboratory Number: **20150375**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4357029 Surface Water - P3 - 05.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **05 February 2021**
Sample Received: **17 February 2021**
Analysis Complete: **01 March 2021**

Issue **1**
Sample **2** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.93	ng/l	26/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	26/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.45	ng/l	26/02/2021	Y S	SUBCON
PFBA (357-22-4)	7.9	ng/l	26/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpA (375-85-9)	7.98	ng/l	26/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHxA (307-24-4)	6.9	ng/l	26/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	26/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFOA (335-67-1)	2.02	ng/l	26/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	26/02/2021	Y S	SUBCON
PFPA (2706-90-3)	11	ng/l	26/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	26/02/2021	Y S	SUBCON
Total PFOS	1.45	ng/l	26/02/2021	Y S	SUBCON

Analyst Comments for 20150375:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1992533/2021**
Laboratory Number: **20150376**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4357030 Surface Water - P7 - 05.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **05 February 2021**
Sample Received: **17 February 2021**
Analysis Complete: **01 March 2021**

Issue **1**
Sample **3** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	26/02/2021	Y S	SUBCON
Branched PFOS	1.02	ng/l	26/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.17	ng/l	26/02/2021	Y S	SUBCON
PFBA (357-22-4)	22.4	ng/l	26/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpA (375-85-9)	9.76	ng/l	26/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHxA (307-24-4)	9.46	ng/l	26/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	26/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFOA (335-67-1)	2.22	ng/l	26/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	26/02/2021	Y S	SUBCON
PFPA (2706-90-3)	16.5	ng/l	26/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	26/02/2021	Y S	SUBCON
Total PFOS	2.19	ng/l	26/02/2021	Y S	SUBCON

Analyst Comments for 20150376:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1992533/2021**
Laboratory Number: **20150377**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4357031 Surface Water - P8 - 05.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **05 February 2021**
Sample Received: **17 February 2021**
Analysis Complete: **01 March 2021**

Issue **1**
Sample **4** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.43	ng/l	26/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	26/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.07	ng/l	26/02/2021	Y S	SUBCON
PFBA (357-22-4)	6.57	ng/l	26/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpA (375-85-9)	5.19	ng/l	26/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHxA (307-24-4)	4.47	ng/l	26/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	26/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFOA (335-67-1)	0.97	ng/l	26/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	26/02/2021	Y S	SUBCON
PFPA (2706-90-3)	6.2	ng/l	26/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	26/02/2021	Y S	SUBCON
Total PFOS	1.07	ng/l	26/02/2021	Y S	SUBCON

Analyst Comments for 20150377:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 8 of 24

Signed:



Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1992533/2021**
Laboratory Number: **20150378**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4357032 Surface Water - SWML 4 - 05.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **05 February 2021**
Sample Received: **17 February 2021**
Analysis Complete: **01 March 2021**

Issue **1**
Sample **5** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	399	ng/l	26/02/2021	Y S	SUBCON
Branched PFOS	37.6	ng/l	26/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	100	ng/l	26/02/2021	Y S	SUBCON
PFBA (357-22-4)	56.9	ng/l	26/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpA (375-85-9)	88.3	ng/l	26/02/2021	Y S	SUBCON
PFHpS (375-92-8)	2.14	ng/l	26/02/2021	Y S	SUBCON
PFHxA (307-24-4)	66.7	ng/l	26/02/2021	Y S	SUBCON
PFHxS (355-46-4)	16.1	ng/l	26/02/2021	Y S	SUBCON
PFNA (375-95-1)	10.5	ng/l	26/02/2021	Y S	SUBCON
PFOA (335-67-1)	25.3	ng/l	26/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	26/02/2021	Y S	SUBCON
PFFPA (2706-90-3)	126	ng/l	26/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	26/02/2021	Y S	SUBCON
Total PFOS	138	ng/l	26/02/2021	Y S	SUBCON

Analyst Comments for 20150378:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 10 of 24

Signed:



Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1992533/2021**
Laboratory Number: **20150379**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4357033 Surface Water - SWML 5 A - 05.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **05 February 2021**
Sample Received: **17 February 2021**
Analysis Complete: **01 March 2021**

Issue **1**
Sample **6** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	32.9	ng/l	26/02/2021	Y S	SUBCON
Branched PFOS	34	ng/l	26/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	37.1	ng/l	26/02/2021	Y S	SUBCON
PFBA (357-22-4)	32	ng/l	26/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpA (375-85-9)	47	ng/l	26/02/2021	Y S	SUBCON
PFHpS (375-92-8)	3.11	ng/l	26/02/2021	Y S	SUBCON
PFHxA (307-24-4)	31.2	ng/l	26/02/2021	Y S	SUBCON
PFHxS (355-46-4)	33.6	ng/l	26/02/2021	Y S	SUBCON
PFNA (375-95-1)	13.1	ng/l	26/02/2021	Y S	SUBCON
PFOA (335-67-1)	29.8	ng/l	26/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	26/02/2021	Y S	SUBCON
PFFPA (2706-90-3)	59.7	ng/l	26/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	26/02/2021	Y S	SUBCON
Total PFOS	71.1	ng/l	26/02/2021	Y S	SUBCON

Analyst Comments for 20150379:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1992533/2021**
Laboratory Number: **20150380**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4357034 Surface Water - SWML 5 B - 05.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **05 February 2021**
Sample Received: **17 February 2021**
Analysis Complete: **01 March 2021**

Issue **1**
Sample **7** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	51.8	ng/l	26/02/2021	Y S	SUBCON
Branched PFOS	361	ng/l	26/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	337	ng/l	26/02/2021	Y S	SUBCON
PFBA (357-22-4)	142	ng/l	26/02/2021	Y S	SUBCON
PFBS (375-73-5)	14.2	ng/l	26/02/2021	Y S	SUBCON
PFDA (335-76-2)	2.96	ng/l	26/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpA (375-85-9)	359	ng/l	26/02/2021	Y S	SUBCON
PFHpS (375-92-8)	46	ng/l	26/02/2021	Y S	SUBCON
PFHxA (307-24-4)	222	ng/l	26/02/2021	Y S	SUBCON
PFHxS (355-46-4)	541	ng/l	26/02/2021	Y S	SUBCON
PFNA (375-95-1)	203	ng/l	26/02/2021	Y S	SUBCON
PFOA (335-67-1)	458	ng/l	26/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	26/02/2021	Y S	SUBCON
PFFPA (2706-90-3)	303	ng/l	26/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	26/02/2021	Y S	SUBCON
Total PFOS	698	ng/l	26/02/2021	Y S	SUBCON

Analyst Comments for 20150380:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1992533/2021**
Laboratory Number: **20150381**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4357035 Surface Water - SWML 7 - 05.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **05 February 2021**
Sample Received: **17 February 2021**
Analysis Complete: **01 March 2021**

Issue **1**
Sample **8** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	26/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	26/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.735	ng/l	26/02/2021	Y S	SUBCON
PFBA (357-22-4)	10.9	ng/l	26/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpA (375-85-9)	1.36	ng/l	26/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHxA (307-24-4)	5.33	ng/l	26/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	26/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	26/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	26/02/2021	Y S	SUBCON
PFPA (2706-90-3)	9.5	ng/l	26/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	26/02/2021	Y S	SUBCON
Total PFOS	<1	ng/l	26/02/2021	Y S	SUBCON

Analyst Comments for 20150381:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1992533/2021**
Laboratory Number: **20150382**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4357036 Groundwater - GW4 - 04.02.2021**
Sample Matrix: **Ground Water**
Sample Date/Time: **04 February 2021**
Sample Received: **17 February 2021**
Analysis Complete: **01 March 2021**

Issue **1**
Sample **9** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	26/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	26/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	26/02/2021	Y S	SUBCON
PFBA (357-22-4)	14.1	ng/l	26/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHxA (307-24-4)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	26/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	26/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	26/02/2021	Y S	SUBCON
PFPA (2706-90-3)	<1	ng/l	26/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	26/02/2021	Y S	SUBCON
Total PFOS	<1	ng/l	26/02/2021	Y S	SUBCON

Analyst Comments for 20150382:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1992533/2021**
Laboratory Number: **20150383**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4357037 Groundwater - GW5 - 04.02.2021**
Sample Matrix: **Ground Water**
Sample Date/Time: **04 February 2021**
Sample Received: **17 February 2021**
Analysis Complete: **01 March 2021**

Issue **1**
Sample **10** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	26/02/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	26/02/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	26/02/2021	Y S	SUBCON
PFBA (357-22-4)	10.9	ng/l	26/02/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	26/02/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHpA (375-85-9)	3.71	ng/l	26/02/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	26/02/2021	Y S	SUBCON
PFHxA (307-24-4)	3.55	ng/l	26/02/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	26/02/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	26/02/2021	Y S	SUBCON
PFOA (335-67-1)	1.02	ng/l	26/02/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	26/02/2021	Y S	SUBCON
PFPA (2706-90-3)	3.25	ng/l	26/02/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	26/02/2021	Y S	SUBCON
Total PFOS	<1	ng/l	26/02/2021	Y S	SUBCON

Analyst Comments for 20150383:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/1992533/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **01 March 2021**

Sample No	Analysis Comments
20150374	
20150375	
20150376	
20150377	
20150378	
20150379	
20150380	
20150381	
20150382	
20150383	

Signed: 

Name: **C. Ulph**

Date: **01 March 2021**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/1992533/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 01 March 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 01 March 2021
	Title: Micro/Crypto/Logistics Manager	

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Wakefield
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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

08 March 2021

Test Report: WAK/1995867/2021

Dear Ms Thomas

Analysis of your sample(s) received on 24 February 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

C. Ulph

Title:

Micro/Crypto/Logistics Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

**Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary**



Date of Issue: **08 March 2021**

Report Number: **WAK/1995867/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-719230221

Number of Samples
included in this report **10**

Job Received: **24 February 2021**

Number of Test Results
included in this report **170**

Analysis Commenced: **05 March 2021**

Signed:

Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1995867/2021**
Laboratory Number: **20173466**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4366681 Surface Water P2 - 12.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 February 2021**
Sample Received: **24 February 2021**
Analysis Complete: **08 March 2021**

Issue **1**
Sample **1** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/03/2021	Y S	SUBCON
PFBA (357-22-4)	7.05	ng/l	05/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHpA (375-85-9)	5.11	ng/l	05/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHxA (307-24-4)	3.16	ng/l	05/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.46	ng/l	05/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/03/2021	Y S	SUBCON
PFPA (2706-90-3)	4.32	ng/l	05/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/03/2021	Y S	SUBCON

Analyst Comments for 20173466:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/1995867/2021**
Laboratory Number: **20173467**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4366682 Surface Water P3 - 12.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 February 2021**
Sample Received: **24 February 2021**
Analysis Complete: **08 March 2021**

Issue **1**
Sample **2** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.9	ng/l	05/03/2021	Y S	SUBCON
PFBA (357-22-4)	7.69	ng/l	05/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHpA (375-85-9)	8.69	ng/l	05/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHxA (307-24-4)	7.37	ng/l	05/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.88	ng/l	05/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/03/2021	Y S	SUBCON
PFPA (2706-90-3)	14.2	ng/l	05/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/03/2021	Y S	SUBCON

Analyst Comments for 20173467:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1995867/2021**
Laboratory Number: **20173468**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4366683 Surface Water P7 - 12.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 February 2021**
Sample Received: **24 February 2021**
Analysis Complete: **08 March 2021**

Issue **1**
Sample **3** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	9.6	ng/l	05/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.22	ng/l	05/03/2021	Y S	SUBCON
PFBA (357-22-4)	<14	ng/l	05/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHpA (375-85-9)	16.1	ng/l	05/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHxA (307-24-4)	9.34	ng/l	05/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/03/2021	Y S	SUBCON
PFNA (375-95-1)	1.17	ng/l	05/03/2021	Y S	SUBCON
PFOA (335-67-1)	3.59	ng/l	05/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/03/2021	Y S	SUBCON
PFFPA (2706-90-3)	16.5	ng/l	05/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/03/2021	Y S	SUBCON
Total PFOS	1.22	ng/l	05/03/2021	Y S	SUBCON

Analyst Comments for 20173468:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1995867/2021**
Laboratory Number: **20173469**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4366684 Surface Water P8 - 12.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 February 2021**
Sample Received: **24 February 2021**
Analysis Complete: **08 March 2021**

Issue **1**
Sample **4** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	15	ng/l	05/03/2021	Y S	SUBCON
Branched PFOS	1.39	ng/l	05/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.69	ng/l	05/03/2021	Y S	SUBCON
PFBA (357-22-4)	<13.5	ng/l	05/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHpA (375-85-9)	21.9	ng/l	05/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHxA (307-24-4)	13.7	ng/l	05/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.18	ng/l	05/03/2021	Y S	SUBCON
PFNA (375-95-1)	1.41	ng/l	05/03/2021	Y S	SUBCON
PFOA (335-67-1)	3.49	ng/l	05/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/03/2021	Y S	SUBCON
PFFPA (2706-90-3)	25.8	ng/l	05/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/03/2021	Y S	SUBCON
Total PFOS	5.08	ng/l	05/03/2021	Y S	SUBCON

Analyst Comments for 20173469:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1995867/2021**
Laboratory Number: **20173470**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4366685 Surface Water SWML 4 - 12.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 February 2021**
Sample Received: **24 February 2021**
Analysis Complete: **08 March 2021**

Issue **1**
Sample **5** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	78.4	ng/l	05/03/2021	Y S	SUBCON
Branched PFOS	5.5	ng/l	05/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	14.4	ng/l	05/03/2021	Y S	SUBCON
PFBA (357-22-4)	<18	ng/l	05/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHpA (375-85-9)	26.4	ng/l	05/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHxA (307-24-4)	22.2	ng/l	05/03/2021	Y S	SUBCON
PFHxS (355-46-4)	3.32	ng/l	05/03/2021	Y S	SUBCON
PFNA (375-95-1)	2.79	ng/l	05/03/2021	Y S	SUBCON
PFOA (335-67-1)	7.49	ng/l	05/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/03/2021	Y S	SUBCON
PFFPA (2706-90-3)	48.8	ng/l	05/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/03/2021	Y S	SUBCON
Total PFOS	19.9	ng/l	05/03/2021	Y S	SUBCON

Analyst Comments for 20173470:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1995867/2021**
Laboratory Number: **20173471**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4366686 Surface Water SWML 5A - 12.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 February 2021**
Sample Received: **24 February 2021**
Analysis Complete: **08 March 2021**

Issue **1**
Sample **6** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	48.3	ng/l	05/03/2021	Y S	SUBCON
Branched PFOS	17.4	ng/l	05/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	22.7	ng/l	05/03/2021	Y S	SUBCON
PFBA (357-22-4)	<19	ng/l	05/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHpA (375-85-9)	44.9	ng/l	05/03/2021	Y S	SUBCON
PFHpS (375-92-8)	1.19	ng/l	05/03/2021	Y S	SUBCON
PFHxA (307-24-4)	24.5	ng/l	05/03/2021	Y S	SUBCON
PFHxS (355-46-4)	17.1	ng/l	05/03/2021	Y S	SUBCON
PFNA (375-95-1)	5.01	ng/l	05/03/2021	Y S	SUBCON
PFOA (335-67-1)	14	ng/l	05/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/03/2021	Y S	SUBCON
PFFPA (2706-90-3)	39.6	ng/l	05/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/03/2021	Y S	SUBCON
Total PFOS	40	ng/l	05/03/2021	Y S	SUBCON

Analyst Comments for 20173471:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1995867/2021**
Laboratory Number: **20173472**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4366688 Surface Water SWML 7 - 12.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 February 2021**
Sample Received: **24 February 2021**
Analysis Complete: **08 March 2021**

Issue **1**
Sample **7** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/03/2021	Y S	SUBCON
PFBA (357-22-4)	4.35	ng/l	05/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHpA (375-85-9)	1.05	ng/l	05/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHxA (307-24-4)	4.33	ng/l	05/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	05/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/03/2021	Y S	SUBCON
PFPA (2706-90-3)	8.24	ng/l	05/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/03/2021	Y S	SUBCON

Analyst Comments for 20173472:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1995867/2021**
Laboratory Number: **20173473**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4366689 Surface Water SWML 7 B - 12.02.2021**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 February 2021**
Sample Received: **24 February 2021**
Analysis Complete: **08 March 2021**

Issue **1**
Sample **8** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/03/2021	Y S	SUBCON
PFBA (357-22-4)	4.4	ng/l	05/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHpA (375-85-9)	1.11	ng/l	05/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHxA (307-24-4)	1.54	ng/l	05/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFOA (335-67-1)	0.724	ng/l	05/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/03/2021	Y S	SUBCON
PFFPA (2706-90-3)	2.79	ng/l	05/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/03/2021	Y S	SUBCON

Analyst Comments for 20173473:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1995867/2021**
Laboratory Number: **20173474**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4366690 Ground Water - GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **12 February 2021**
Sample Received: **24 February 2021**
Analysis Complete: **08 March 2021**

Issue **1**
Sample **9** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/03/2021	Y S	SUBCON
PFBA (357-22-4)	3.19	ng/l	05/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHpA (375-85-9)	1.2	ng/l	05/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHxA (307-24-4)	1.04	ng/l	05/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFOA (335-67-1)	0.993	ng/l	05/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/03/2021	Y S	SUBCON
PFPA (2706-90-3)	<1	ng/l	05/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/03/2021	Y S	SUBCON

Analyst Comments for 20173474:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/1995867/2021**
Laboratory Number: **20173475**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4366691 Ground Water - GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **12 February 2021**
Sample Received: **24 February 2021**
Analysis Complete: **08 March 2021**

Issue **1**
Sample **10** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.25	ng/l	05/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/03/2021	Y S	SUBCON
PFBA (357-22-4)	9.56	ng/l	05/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHpA (375-85-9)	4.98	ng/l	05/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/03/2021	Y S	SUBCON
PFHxA (307-24-4)	3.69	ng/l	05/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.42	ng/l	05/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/03/2021	Y S	SUBCON
PFPA (2706-90-3)	4.8	ng/l	05/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/03/2021	Y S	SUBCON

Analyst Comments for 20173475:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 20 of 24

Signed:



Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/1995867/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **08 March 2021**

Sample No	Analysis Comments
20173466	
20173467	
20173468	
20173469	
20173470	
20173471	
20173472	
20173473	
20173474	
20173475	

Signed: 

Name: **C. Ulph**

Date: **08 March 2021**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/1995867/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 08 March 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 08 March 2021
	Title: Micro/Crypto/Logistics Manager	

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ALS Environmental Ltd

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

15 March 2021

Test Report: COV/1998570/2021

Dear Ms Thomas

Analysis of your sample(s) received on 02 March 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

D. Lewis

Title:

Technical Inorganic Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **15 March 2021**

Report Number: **COV/1998570/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-006020321

Number of Samples
included in this report **10**

Job Received: **02 March 2021**

Number of Test Results
included in this report **170**

Analysis Commenced: **12 March 2021**

Signed:

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 24

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1998570/2021**
Laboratory Number: **20192558**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4374583 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 February 2021**
Sample Received: **02 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **1** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	8.11	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	4.08	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	3.55	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.48	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	4.89	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20192558:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1998570/2021**
Laboratory Number: **20192559**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4374584 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 February 2021**
Sample Received: **02 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **2** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.05	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	12	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	7.63	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	8.52	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	1.06	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.98	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	14.9	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	1.05	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20192559:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/1998570/2021**
Laboratory Number: **20192560**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4374585 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 February 2021**
Sample Received: **02 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **3** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.84	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	1.03	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.53	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	13.3	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	11.9	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	10.8	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	1.29	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	4.18	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	18.3	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	2.57	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20192560:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/1998570/2021**
Laboratory Number: **20192561**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4374586 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 February 2021**
Sample Received: **02 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **4** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	20.8	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	5.27	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	<33	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	9.87	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	17.4	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	5.12	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	27.9	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	5.27	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20192561:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1998570/2021**
Laboratory Number: **20192562**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4374587 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 February 2021**
Sample Received: **02 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **5** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	39.9	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	3.21	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	6.55	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	<17.5	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	16.2	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	20.2	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.94	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	1.35	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	5.39	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	42	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	9.76	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20192562:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 10 of 24

Signed: 

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1998570/2021**
Laboratory Number: **20192563**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4374588 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 February 2021**
Sample Received: **02 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **6** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	47.8	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	18.3	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	24.2	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	<19.5	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	29.7	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	1.31	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	23.2	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	17.1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	4.98	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	14.2	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	41	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	42.5	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20192563:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1998570/2021**
Laboratory Number: **20192564**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4374589 SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 February 2021**
Sample Received: **02 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **7** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	8.27	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	4.48	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	9	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20192564:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1998570/2021**
Laboratory Number: **20192565**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4374590 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 February 2021**
Sample Received: **02 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **8** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.797	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	4.4	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	1.1	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	2.36	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	3.69	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	3.44	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20192565:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1998570/2021**
Laboratory Number: **20192566**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4374591 GW 4**
Sample Matrix: **Ground Water**
Sample Date/Time:
Sample Received: **02 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **9** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	<34.5	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	<3.25	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	<5	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<5	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20192566:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1998570/2021**
Laboratory Number: **20192567**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4374592 GW 5**
Sample Matrix: **Ground Water**
Sample Date/Time:
Sample Received: **02 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **10** of **10**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	18.4	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<6	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	5.57	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	<3.25	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	5.83	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<5	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20192567:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**



ANALYST COMMENTS FOR REPORT COV/1998570/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **15 March 2021**

Sample No	Analysis Comments
20192558	
20192559	
20192560	
20192561	
20192562	
20192563	
20192564	
20192565	
20192566	
20192567	

Signed: *D. Lewis*

Name: **D. Lewis**

Date: **15 March 2021**

Title: **Technical Inorganic Manager**




DETERMINAND COMMENTS FOR REPORT COV/1998570/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 15 March 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: D. Lewis	Date: 15 March 2021
	Title: Technical Inorganic Manager	

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ALS Environmental Ltd
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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

15 March 2021

Test Report: COV/2100040/2021

Dear Ms Thomas

Analysis of your sample(s) received on 04 March 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **15 March 2021**

Report Number: **COV/2100040/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-628030321

Number of Samples
included in this report **15**

Job Received: **04 March 2021**

Number of Test Results
included in this report **255**

Analysis Commenced: **12 March 2021**

Signed:

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 34

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201547**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378434 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **1** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	1.08	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.997	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	25.7	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	9.36	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	10.2	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.92	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	16.2	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	2.07	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201547:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201548**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378435 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **2** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	1.87	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.764	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	24.3	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	11.3	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	14.7	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	3.06	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.35	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	29.9	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	2.63	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201548:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201549**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378436 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **3** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	31.9	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	7	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	7.17	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	25.6	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	18.9	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	29.7	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	4.7	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	1.39	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	4.18	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	66.5	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	14.2	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201549:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201550**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378437 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **4** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.833	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	12.6	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	2.97	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	3.69	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.07	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	8.72	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201550:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201551**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378438 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **5** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	34.4	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	2.12	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	5.93	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	<24	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	9.71	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	6.76	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	1.05	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	1.23	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	3.7	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	13.4	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	8.05	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201551:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201552**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378439 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **6** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	8.79	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	1.72	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.33	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	14.9	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	7.87	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	14.1	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.28	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.6	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	26.5	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	4.05	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201552:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201553**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378440 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **7** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	1.72	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.791	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	20.3	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	12	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	15.4	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.99	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.37	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	28.5	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	2.51	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201553:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2100040/2021**
Laboratory Number: **20201554**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378441 SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **8** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.86	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.17	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	18.3	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	6.76	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	8.35	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.28	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	20.8	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	2.17	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201554:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201555**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378442 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **9** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	9.13	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	2.37	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.39	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	19.3	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	13.2	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	17.5	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.28	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	3.8	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	35.6	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	5.76	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201555:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2100040/2021**
Laboratory Number: **20201556**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378443 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **10** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	39.7	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	21.4	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	21.4	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	34.5	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	30.9	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	1.79	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	27.1	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	23.3	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	6.64	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	16.8	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	43.4	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	42.8	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201556:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201557**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378444 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **11** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	20.8	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	111	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	95.7	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	84.7	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	5.76	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	90	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	9.52	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	56.4	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	124	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	30.2	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	78.9	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	48.6	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	207	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201557:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 22 of 34

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201558**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378445 SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **12** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.957	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	<21	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	9.88	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	5.14	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.46	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	8.51	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201558:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201559**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378446 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **13** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.28	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	14	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	1.02	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	1.48	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	0.861	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	2.69	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201559:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201560**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378447 GW4**
Sample Matrix: **Ground Water**
Sample Date/Time:
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **14** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	<80	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	<3.25	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	<5	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<5	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201560:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 28 of 34

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201561**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378448 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time:
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **15** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	11.6	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	1.85	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	1.89	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	0.908	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	2.62	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201561:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**



ANALYST COMMENTS FOR REPORT COV/2100040/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **15 March 2021**

Sample No	Analysis Comments
20201547	
20201548	
20201549	
20201550	
20201551	
20201552	
20201553	
20201554	
20201555	
20201556	
20201557	
20201558	
20201559	
20201560	
20201561	

Signed:

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**




DETERMINAND COMMENTS FOR REPORT COV/2100040/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 15 March 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: A. Zunzunegui	Date: 15 March 2021
	Title: Dept Organic Technical Manager	

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

15 March 2021

Test Report: COV/2100040/2021

Dear Ms Thomas

Analysis of your sample(s) received on 04 March 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **15 March 2021**

Report Number: **COV/2100040/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-628030321

Number of Samples
included in this report **15**

Job Received: **04 March 2021**

Number of Test Results
included in this report **255**

Analysis Commenced: **12 March 2021**

Signed:

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201547**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378434 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **1** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	1.08	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.997	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	25.7	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	9.36	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	10.2	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.92	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	16.2	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	2.07	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201547:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201548**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378435 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **2** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	1.87	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.764	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	24.3	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	11.3	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	14.7	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	3.06	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.35	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	29.9	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	2.63	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201548:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201549**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378436 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **3** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	31.9	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	7	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	7.17	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	25.6	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	18.9	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	29.7	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	4.7	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	1.39	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	4.18	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	66.5	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	14.2	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201549:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201550**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378437 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **4** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.833	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	12.6	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	2.97	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	3.69	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.07	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	8.72	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201550:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201551**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378438 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **5** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	34.4	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	2.12	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	5.93	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	<24	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	9.71	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	6.76	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	1.05	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	1.23	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	3.7	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	13.4	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	8.05	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201551:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201552**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378439 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **6** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	8.79	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	1.72	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.33	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	14.9	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	7.87	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	14.1	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.28	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.6	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	26.5	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	4.05	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201552:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2100040/2021**
Laboratory Number: **20201553**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378440 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **7** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	1.72	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.791	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	20.3	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	12	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	15.4	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.99	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.37	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	28.5	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	2.51	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201553:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2100040/2021**
Laboratory Number: **20201554**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378441 SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **8** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.86	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.17	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	18.3	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	6.76	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	8.35	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.28	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	20.8	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	2.17	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201554:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2100040/2021**
Laboratory Number: **20201555**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378442 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **9** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	9.13	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	2.37	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.39	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	19.3	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	13.2	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	17.5	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.28	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	3.8	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	35.6	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	5.76	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201555:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2100040/2021**
Laboratory Number: **20201556**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378443 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **10** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	39.7	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	21.4	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	21.4	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	34.5	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	30.9	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	1.79	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	27.1	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	23.3	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	6.64	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	16.8	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	43.4	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	42.8	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201556:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2100040/2021**
Laboratory Number: **20201557**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378444 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **11** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	20.8	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	111	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	95.7	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	84.7	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	5.76	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	90	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	9.52	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	56.4	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	124	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	30.2	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	78.9	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	48.6	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	207	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201557:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201558**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378445 SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **12** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.957	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	<21	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	9.88	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	5.14	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.46	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	8.51	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201558:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 24 of 34

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201559**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378446 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 February 2021**
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **13** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.28	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	14	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	1.02	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	1.48	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	0.861	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	2.69	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201559:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201560**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378447 GW4**
Sample Matrix: **Ground Water**
Sample Date/Time:
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **14** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	<80	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	<5	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	<3.25	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	<5	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<5	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201560:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 28 of 34

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2100040/2021**
Laboratory Number: **20201561**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4378448 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time:
Sample Received: **04 March 2021**
Analysis Complete: **15 March 2021**

Issue **1**
Sample **15** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	12/03/2021	Y S	SUBCON
PFBA (357-22-4)	11.6	ng/l	12/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHpA (375-85-9)	1.85	ng/l	12/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/03/2021	Y S	SUBCON
PFHxA (307-24-4)	1.89	ng/l	12/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/03/2021	Y S	SUBCON
PFOA (335-67-1)	0.908	ng/l	12/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/03/2021	Y S	SUBCON
PFPA (2706-90-3)	2.62	ng/l	12/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/03/2021	Y S	SUBCON

Analyst Comments for 20201561:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**



ANALYST COMMENTS FOR REPORT COV/2100040/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **15 March 2021**

Sample No	Analysis Comments
20201547	
20201548	
20201549	
20201550	
20201551	
20201552	
20201553	
20201554	
20201555	
20201556	
20201557	
20201558	
20201559	
20201560	
20201561	

Signed:

Name: **A. Zunzunegui**

Date: **15 March 2021**

Title: **Dept Organic Technical Manager**




DETERMINAND COMMENTS FOR REPORT COV/2100040/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 15 March 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: A. Zunzunegui	Date: 15 March 2021
	Title: Dept Organic Technical Manager	

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Coventry
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Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

25 March 2021

Test Report: COV/2107815/2021

Dear Ms Thomas

Analysis of your sample(s) received on 19 March 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

D. Lewis

Title:

Technical Inorganic Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **25 March 2021**

Report Number: **COV/2107815/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-595180321

Number of Samples
included in this report **15**

Job Received: **19 March 2021**

Number of Test Results
included in this report **255**

Analysis Commenced: **25 March 2021**

Signed:

Name: **D. Lewis**

Date: **25 March 2021**

Title: **Technical Inorganic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 34

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2107815/2021**
Laboratory Number: **20253929**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399692 Surface Water P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **1** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.25	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	1.18	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.11	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	19	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	13.4	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	14.8	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	1.31	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.25	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	18.9	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	2.29	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253929:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **25 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2107815/2021**
Laboratory Number: **20253930**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399693 Surface Water P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **2** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	1.39	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.988	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	24.9	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	13	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	16.4	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.37	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.53	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	28.7	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	2.38	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253930:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **25 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2107815/2021**
Laboratory Number: **20253931**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399694 Surface Water P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **3** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	31.4	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	4.7	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	6.16	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	25.1	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	1.26	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	14.8	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	28	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	4.91	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	1.38	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	3.92	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	53.5	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	10.9	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253931:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **25 March 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2107815/2021**
Laboratory Number: **20253932**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399695 Surface Water P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **4** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.65	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.734	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	15.5	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	7.39	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	8.09	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.27	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	13.4	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253932:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Name: **D. Lewis**

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Title: **Technical Inorganic Manager**

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Report Number: **COV/2107815/2021**
Laboratory Number: **20253933**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399696 Surface Water P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **5** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	25.6	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	1.1	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.19	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	12.7	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	5.19	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	5.29	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.99	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	8.59	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	4.29	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253933:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Name: **D. Lewis**

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Title: **Technical Inorganic Manager**

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Report Number: **COV/2107815/2021**
Laboratory Number: **20253934**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399697 Surface Water R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **6** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	27.4	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	2.3	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.35	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	23	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	7.54	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	12.2	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	1.87	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.28	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	20.6	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	6.65	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253934:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

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Report Number: **COV/2107815/2021**
Laboratory Number: **20253935**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399698 Surface Water R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **7** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	53.9	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	3.42	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	9.23	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	22.7	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	14	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	15.4	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	4.65	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	2.18	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	6.25	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	26.3	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	12.7	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253935:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

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Date: **25 March 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2107815/2021**
Laboratory Number: **20253936**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399699 Surface Water SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **8** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	1.34	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.991	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	19.9	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	12.4	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	16.1	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.08	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.49	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	28.1	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	2.33	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253936:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Name: **D. Lewis**

Date: **25 March 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2107815/2021**
Laboratory Number: **20253937**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399700 Surface Water SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **9** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	20.9	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	1.76	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	6.18	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	11.3	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	6.13	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	5.81	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	1.97	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	9.23	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	7.94	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253937:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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Name: **D. Lewis**

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Title: **Technical Inorganic Manager**

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Report Number: **COV/2107815/2021**
Laboratory Number: **20253938**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399701 Surface Water SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **10** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	13.6	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	2	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.23	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	19.2	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	10.5	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	16.2	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	2.42	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	1.07	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	3.52	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	31.1	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	5.23	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253938:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Signed: 

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Report Number: **COV/2107815/2021**
Laboratory Number: **20253939**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399702 Surface Water SWML5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **11** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	32.9	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	8.19	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	11.7	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	19.4	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	19.4	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	1.23	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	18.2	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	12	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	3.64	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	8.99	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	28.7	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	19.9	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253939:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Date: **25 March 2021**

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Report Number: **COV/2107815/2021**
Laboratory Number: **20253940**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399703 Surface Water SWML5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **12** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.58	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.13	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	15	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	7.38	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	8.21	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	1.14	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	2.57	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	13.8	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	1.13	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253940:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **25 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2107815/2021**
Laboratory Number: **20253941**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399704 Surface Water SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **13** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	10.1	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	1.11	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	1.48	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	0.848	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	2.18	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253941:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **25 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2107815/2021**
Laboratory Number: **20253942**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399705 Surface Water SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **14** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	25.9	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	153	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	133	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	45.1	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	9.24	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	1.43	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	153	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	15.6	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	83.1	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	230	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	53.7	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	140	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	80	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	285	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253942:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 28 of 34

Signed: 

Name: **D. Lewis**

Date: **25 March 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

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Report Number: **COV/2107815/2021**
Laboratory Number: **20253943**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399706 Groundwater GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **12 March 2021**
Sample Received: **19 March 2021**
Analysis Complete: **25 March 2021**

Issue **1**
Sample **15** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	25/03/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	25/03/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	25/03/2021	Y S	SUBCON
PFBA (357-22-4)	11.9	ng/l	25/03/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	25/03/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHpA (375-85-9)	2.16	ng/l	25/03/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	25/03/2021	Y S	SUBCON
PFHxA (307-24-4)	2.37	ng/l	25/03/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	25/03/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	25/03/2021	Y S	SUBCON
PFOA (335-67-1)	0.845	ng/l	25/03/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	25/03/2021	Y S	SUBCON
PFPA (2706-90-3)	4.25	ng/l	25/03/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	25/03/2021	Y S	SUBCON
Total PFOS	<1	ng/l	25/03/2021	Y S	SUBCON

Analyst Comments for 20253943:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **25 March 2021**

Title: **Technical Inorganic Manager**



ANALYST COMMENTS FOR REPORT COV/2107815/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **25 March 2021**

Sample No	Analysis Comments
20253929	
20253930	
20253931	
20253932	
20253933	
20253934	
20253935	
20253936	
20253937	
20253938	
20253939	
20253940	
20253941	
20253942	
20253943	

Signed: *D. Lewis*

Name: **D. Lewis**

Date: **25 March 2021**

Title: **Technical Inorganic Manager**




DETERMINAND COMMENTS FOR REPORT COV/2107815/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 25 March 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: D. Lewis	Date: 25 March 2021
	Title: Technical Inorganic Manager	

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Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

08 April 2021

Test Report: COV/2108518/2021

Dear Ms Thomas

Analysis of your sample(s) received on 22 March 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

D. Lewis

Title:

Technical Inorganic Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **08 April 2021**

Report Number: **COV/2108518/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-770180321

Number of Samples
included in this report **1**

Job Received: **22 March 2021**

Number of Test Results
included in this report **17**

Analysis Commenced: **08 April 2021**

Signed:

Name: **D. Lewis**

Date: **08 April 2021**

Title: **Technical Inorganic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Page 1 of 6

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2108518/2021**
Laboratory Number: **20259002**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4399707 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **18 March 2021**
Sample Received: **22 March 2021**
Analysis Complete: **08 April 2021**

Issue **1**
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	08/04/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	08/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	08/04/2021	Y S	SUBCON
PFBA (357-22-4)	133	ng/l	08/04/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	08/04/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	08/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	08/04/2021	Y S	SUBCON
PFHpA (375-85-9)	<5	ng/l	08/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	08/04/2021	Y S	SUBCON
PFHxA (307-24-4)	<5	ng/l	08/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	08/04/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	08/04/2021	Y S	SUBCON
PFOA (335-67-1)	<3.25	ng/l	08/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	08/04/2021	Y S	SUBCON
PFPA (2706-90-3)	<5	ng/l	08/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	08/04/2021	Y S	SUBCON
Total PFOS	<5	ng/l	08/04/2021	Y S	SUBCON

Analyst Comments for 20259002:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **08 April 2021**

Title: **Technical Inorganic Manager**



ANALYST COMMENTS FOR REPORT COV/2108518/2021

Issue 1

This issue replaces
all previous issues

Date of Issue: **08 April 2021**

Sample No
20259002

Analysis Comments

Signed: *D. Lewis*

Name: **D. Lewis**

Date: **08 April 2021**

Title: **Technical Inorganic Manager**



DETERMINAND COMMENTS FOR REPORT COV/2108518/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 08 April 2021

Sample No	Description	Determinand	Comments

Signed: <i>D. Lewis</i>	Name: D. Lewis	Date: 08 April 2021
	Title: Technical Inorganic Manager	

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Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

12 April 2021

Test Report: COV/2113036/2021

Dear Ms Thomas

Analysis of your sample(s) received on 31 March 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **12 April 2021**

Report Number: **COV/2113036/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-565300321

Number of Samples
included in this report **14**

Job Received: **31 March 2021**

Number of Test Results
included in this report **238**

Analysis Commenced: **09 April 2021**

Signed:

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/2113036/2021**
Laboratory Number: **20291035**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415544 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **1** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	1.47	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.5	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	9.68	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	7.46	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	7.33	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	1.04	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	2.24	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	11.3	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	2.97	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291035:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2113036/2021**
Laboratory Number: **20291036**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415545 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **2** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	2.26	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.36	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	16.3	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	11.2	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	15.5	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	3.26	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	2.63	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	28	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	3.62	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291036:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a circular scribble.

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2113036/2021**
Laboratory Number: **20291037**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415546 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **3** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	8.99	ng/l	09/04/2021	Y S	SUBCON
Branched PFOS	4.51	ng/l	09/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4	ng/l	09/04/2021	Y S	SUBCON
PFBA (357-22-4)	25.8	ng/l	09/04/2021	Y S	SUBCON
PFBS (375-73-5)	1.03	ng/l	09/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	09/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	09/04/2021	Y S	SUBCON
PFHpA (375-85-9)	14.5	ng/l	09/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	09/04/2021	Y S	SUBCON
PFHxA (307-24-4)	35.3	ng/l	09/04/2021	Y S	SUBCON
PFHxS (355-46-4)	4.81	ng/l	09/04/2021	Y S	SUBCON
PFNA (375-95-1)	1.2	ng/l	09/04/2021	Y S	SUBCON
PFOA (335-67-1)	3.89	ng/l	09/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	09/04/2021	Y S	SUBCON
PFPA (2706-90-3)	71.9	ng/l	09/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	09/04/2021	Y S	SUBCON
Total PFOS	8.51	ng/l	09/04/2021	Y S	SUBCON

Analyst Comments for 20291037:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2113036/2021**
Laboratory Number: **20291038**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415547 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **4** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.02	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	6.38	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	1.58	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	2.94	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	2.85	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	1.17	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	6.15	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	1.32	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	1.02	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291038:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2113036/2021**
Laboratory Number: **20291039**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415548 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **5** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	26.3	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	1.53	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.16	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	<10	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	7.67	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	6.71	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	1.02	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	1	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	2.86	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	9.82	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	5.69	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291039:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2113036/2021**
Laboratory Number: **20291040**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415549 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **6** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	7.5	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	1.56	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.9	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	13.4	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	6.81	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	16.5	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	2.12	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	1.04	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	3.02	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	27.9	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	3.46	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291040:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2113036/2021**
Laboratory Number: **20291041**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415550 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **7** of **14**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	78.5	ng/l	12/04/2021	Y	S	SUBCON
Branched PFOS	5.06	ng/l	12/04/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	11.9	ng/l	12/04/2021	Y	S	SUBCON
PFBA (357-22-4)	22.3	ng/l	12/04/2021	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/04/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/04/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/04/2021	Y	S	SUBCON
PFHpA (375-85-9)	29.2	ng/l	12/04/2021	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/04/2021	Y	S	SUBCON
PFHxA (307-24-4)	22	ng/l	12/04/2021	Y	S	SUBCON
PFHxS (355-46-4)	7.12	ng/l	12/04/2021	Y	S	SUBCON
PFNA (375-95-1)	2.87	ng/l	12/04/2021	Y	S	SUBCON
PFOA (335-67-1)	9.21	ng/l	12/04/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/04/2021	Y	S	SUBCON
PFPA (2706-90-3)	31.4	ng/l	12/04/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/04/2021	Y	S	SUBCON
Total PFOS	17	ng/l	12/04/2021	Y	S	SUBCON

Analyst Comments for 20291041:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Signed:

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Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2113036/2021**
Laboratory Number: **20291042**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415551 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **8** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	2.31	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.25	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	13.2	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	11.7	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	13.3	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	3.13	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	2.75	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	25.8	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	3.56	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291042:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2113036/2021**
Laboratory Number: **20291043**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415552 SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **9** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	24.1	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	2.88	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	8.22	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	13.3	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	8.63	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	8.61	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	3.69	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	14.2	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	11.1	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291043:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2113036/2021**
Laboratory Number: **20291044**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415553 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **10** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.87	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	3.03	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.56	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	15.3	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	12.9	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	16.8	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	2.49	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	1.24	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	4.29	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	31.4	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	7.59	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291044:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2113036/2021**
Laboratory Number: **20291045**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415554 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **11** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	37	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	12.5	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	14.2	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	22.5	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	34.4	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	1.31	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	26	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	16.6	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	4.8	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	14.2	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	35.6	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	26.7	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291045:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2113036/2021**
Laboratory Number: **20291046**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415555 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **12** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	32.2	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	135	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	97.7	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	46.1	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	10.9	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	95	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	14.5	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	80.9	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	186	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	43.2	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	106	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	64.7	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	233	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291046:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2113036/2021**
Laboratory Number: **20291047**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415556 SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **13** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	09/04/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	09/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.843	ng/l	09/04/2021	Y S	SUBCON
PFBA (357-22-4)	6.08	ng/l	09/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	09/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	09/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	09/04/2021	Y S	SUBCON
PFHpA (375-85-9)	3.1	ng/l	09/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	09/04/2021	Y S	SUBCON
PFHxA (307-24-4)	4.06	ng/l	09/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	09/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	09/04/2021	Y S	SUBCON
PFOA (335-67-1)	1.39	ng/l	09/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	09/04/2021	Y S	SUBCON
PFPA (2706-90-3)	6.64	ng/l	09/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	09/04/2021	Y S	SUBCON
Total PFOS	<1	ng/l	09/04/2021	Y S	SUBCON

Analyst Comments for 20291047:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2113036/2021**
Laboratory Number: **20291048**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4415557 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **25 March 2021**
Sample Received: **31 March 2021**
Analysis Complete: **12 April 2021**

Issue **1**
Sample **14** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	12/04/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	12/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.924	ng/l	12/04/2021	Y S	SUBCON
PFBA (357-22-4)	4	ng/l	12/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	12/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHpA (375-85-9)	1.28	ng/l	12/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	12/04/2021	Y S	SUBCON
PFHxA (307-24-4)	1.71	ng/l	12/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	12/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	12/04/2021	Y S	SUBCON
PFOA (335-67-1)	1.57	ng/l	12/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	12/04/2021	Y S	SUBCON
PFPA (2706-90-3)	2.45	ng/l	12/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	12/04/2021	Y S	SUBCON
Total PFOS	<1	ng/l	12/04/2021	Y S	SUBCON

Analyst Comments for 20291048:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**



ANALYST COMMENTS FOR REPORT COV/2113036/2021

Issue 1

This issue replaces
all previous issues

Date of Issue: **12 April 2021**

Sample No	Analysis Comments
20291035	
20291036	
20291037	
20291038	
20291039	
20291040	
20291041	
20291042	
20291043	
20291044	
20291045	
20291046	
20291047	
20291048	

Signed:

Name: **A. Zunzunegui**

Date: **12 April 2021**

Title: **Dept Organic Technical Manager**




DETERMINAND COMMENTS FOR REPORT COV/2113036/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 12 April 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: A. Zunzunegui	Date: 12 April 2021
	Title: Dept Organic Technical Manager	

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Coventry
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Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

27 April 2021

Test Report: COV/2119644/2021

Dear Ms Thomas

Analysis of your sample(s) received on 15 April 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

D. Lewis

Title:

Technical Inorganic Manager



Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **27 April 2021**

Report Number: **COV/2119644/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-608140421

Number of Samples
included in this report **16**

Job Received: **15 April 2021**

Number of Test Results
included in this report **272**

Analysis Commenced: **22 April 2021**

Signed:

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 36

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2119644/2021**
Laboratory Number: **20335819**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435489 Surface Water P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **1** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	22/04/2021	Y S	SUBCON
Branched PFOS	1.33	ng/l	22/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.51	ng/l	22/04/2021	Y S	SUBCON
PFBA (357-22-4)	15	ng/l	22/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	22/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	22/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	22/04/2021	Y S	SUBCON
PFHpA (375-85-9)	8.48	ng/l	22/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	22/04/2021	Y S	SUBCON
PFHxA (307-24-4)	9.35	ng/l	22/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	22/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	22/04/2021	Y S	SUBCON
PFOA (335-67-1)	2.07	ng/l	22/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	22/04/2021	Y S	SUBCON
PFPA (2706-90-3)	14.9	ng/l	22/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	22/04/2021	Y S	SUBCON
Total PFOS	2.84	ng/l	22/04/2021	Y S	SUBCON

Analyst Comments for 20335819:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2119644/2021**
Laboratory Number: **20335820**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435490 Surface Water P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **2** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	23/04/2021	Y S	SUBCON
Branched PFOS	2.01	ng/l	23/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.17	ng/l	23/04/2021	Y S	SUBCON
PFBA (357-22-4)	17	ng/l	23/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHpA (375-85-9)	9.53	ng/l	23/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHxA (307-24-4)	14.8	ng/l	23/04/2021	Y S	SUBCON
PFHxS (355-46-4)	2.79	ng/l	23/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFOA (335-67-1)	2.55	ng/l	23/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	23/04/2021	Y S	SUBCON
PFPA (2706-90-3)	29.2	ng/l	23/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	23/04/2021	Y S	SUBCON
Total PFOS	3.17	ng/l	23/04/2021	Y S	SUBCON

Analyst Comments for 20335820:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

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Report Number: **COV/2119644/2021**
Laboratory Number: **20335821**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435491 Surface Water P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **3** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	7.01	ng/l	22/04/2021	Y S	SUBCON
Branched PFOS	4.77	ng/l	22/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.18	ng/l	22/04/2021	Y S	SUBCON
PFBA (357-22-4)	29.7	ng/l	22/04/2021	Y S	SUBCON
PFBS (375-73-5)	1.37	ng/l	22/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	22/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	22/04/2021	Y S	SUBCON
PFHpA (375-85-9)	15.7	ng/l	22/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	22/04/2021	Y S	SUBCON
PFHxA (307-24-4)	49.2	ng/l	22/04/2021	Y S	SUBCON
PFHxS (355-46-4)	5.3	ng/l	22/04/2021	Y S	SUBCON
PFNA (375-95-1)	1.47	ng/l	22/04/2021	Y S	SUBCON
PFOA (335-67-1)	4.65	ng/l	22/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	22/04/2021	Y S	SUBCON
PFPA (2706-90-3)	96.8	ng/l	22/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	22/04/2021	Y S	SUBCON
Total PFOS	8.95	ng/l	22/04/2021	Y S	SUBCON

Analyst Comments for 20335821:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2119644/2021**
Laboratory Number: **20335822**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435492 Surface Water P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **4** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	23/04/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	23/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.38	ng/l	23/04/2021	Y S	SUBCON
PFBA (357-22-4)	10.7	ng/l	23/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHpA (375-85-9)	3.4	ng/l	23/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHxA (307-24-4)	3.49	ng/l	23/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	23/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFOA (335-67-1)	1.47	ng/l	23/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	23/04/2021	Y S	SUBCON
PFPA (2706-90-3)	7.38	ng/l	23/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	23/04/2021	Y S	SUBCON
Total PFOS	1.38	ng/l	23/04/2021	Y S	SUBCON

Analyst Comments for 20335822:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Title: **Technical Inorganic Manager**

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Report Number: **COV/2119644/2021**
Laboratory Number: **20335823**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435493 Surface Water P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **5** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	20.1	ng/l	27/04/2021	Y S	SUBCON
Branched PFOS	1.71	ng/l	27/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.88	ng/l	27/04/2021	Y S	SUBCON
PFBA (357-22-4)	<10	ng/l	27/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	27/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	27/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	27/04/2021	Y S	SUBCON
PFHpA (375-85-9)	11.9	ng/l	27/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	27/04/2021	Y S	SUBCON
PFHxA (307-24-4)	7.48	ng/l	27/04/2021	Y S	SUBCON
PFHxS (355-46-4)	1.03	ng/l	27/04/2021	Y S	SUBCON
PFNA (375-95-1)	1.4	ng/l	27/04/2021	Y S	SUBCON
PFOA (335-67-1)	3.47	ng/l	27/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	27/04/2021	Y S	SUBCON
PFPA (2706-90-3)	15.4	ng/l	27/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	27/04/2021	Y S	SUBCON
Total PFOS	6.58	ng/l	27/04/2021	Y S	SUBCON

Analyst Comments for 20335823:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2119644/2021**
Laboratory Number: **20335824**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435494 Surface Water R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **6** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	11.2	ng/l	23/04/2021	Y S	SUBCON
Branched PFOS	1.96	ng/l	23/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.98	ng/l	23/04/2021	Y S	SUBCON
PFBA (357-22-4)	15.7	ng/l	23/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHpA (375-85-9)	7.17	ng/l	23/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHxA (307-24-4)	11.5	ng/l	23/04/2021	Y S	SUBCON
PFHxS (355-46-4)	1.68	ng/l	23/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFOA (335-67-1)	2.84	ng/l	23/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	23/04/2021	Y S	SUBCON
PFPA (2706-90-3)	22.1	ng/l	23/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	23/04/2021	Y S	SUBCON
Total PFOS	4.94	ng/l	23/04/2021	Y S	SUBCON

Analyst Comments for 20335824:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2119644/2021**
Laboratory Number: **20335825**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435495 Surface Water R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **7** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	153	ng/l	22/04/2021	Y S	SUBCON
Branched PFOS	7.32	ng/l	22/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	21.1	ng/l	22/04/2021	Y S	SUBCON
PFBA (357-22-4)	34.4	ng/l	22/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	22/04/2021	Y S	SUBCON
PFDA (335-76-2)	2.15	ng/l	22/04/2021	Y S	SUBCON
PFDoA (307-55-1)	4.13	ng/l	22/04/2021	Y S	SUBCON
PFHpA (375-85-9)	41.6	ng/l	22/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	22/04/2021	Y S	SUBCON
PFHxA (307-24-4)	34.8	ng/l	22/04/2021	Y S	SUBCON
PFHxS (355-46-4)	8.49	ng/l	22/04/2021	Y S	SUBCON
PFNA (375-95-1)	4.01	ng/l	22/04/2021	Y S	SUBCON
PFOA (335-67-1)	11.6	ng/l	22/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	22/04/2021	Y S	SUBCON
PFPA (2706-90-3)	62.9	ng/l	22/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	3.8	ng/l	22/04/2021	Y S	SUBCON
Total PFOS	28.4	ng/l	22/04/2021	Y S	SUBCON

Analyst Comments for 20335825:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2119644/2021**
Laboratory Number: **20335826**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435496 Surface Water SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **8** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.4	ng/l	23/04/2021	Y S	SUBCON
Branched PFOS	2.29	ng/l	23/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.02	ng/l	23/04/2021	Y S	SUBCON
PFBA (357-22-4)	13.4	ng/l	23/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHpA (375-85-9)	8.56	ng/l	23/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHxA (307-24-4)	13.8	ng/l	23/04/2021	Y S	SUBCON
PFHxS (355-46-4)	2.5	ng/l	23/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFOA (335-67-1)	2.55	ng/l	23/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	23/04/2021	Y S	SUBCON
PFPA (2706-90-3)	24.7	ng/l	23/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	23/04/2021	Y S	SUBCON
Total PFOS	4.31	ng/l	23/04/2021	Y S	SUBCON

Analyst Comments for 20335826:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Title: **Technical Inorganic Manager**

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Report Number: **COV/2119644/2021**
Laboratory Number: **20335827**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435497 Surface Water SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **9** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	14.1	ng/l	27/04/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	27/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	7.26	ng/l	27/04/2021	Y S	SUBCON
PFBA (357-22-4)	28.6	ng/l	27/04/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	27/04/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	27/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	27/04/2021	Y S	SUBCON
PFHpA (375-85-9)	12	ng/l	27/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	27/04/2021	Y S	SUBCON
PFHxA (307-24-4)	20.3	ng/l	27/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	27/04/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	27/04/2021	Y S	SUBCON
PFOA (335-67-1)	5.77	ng/l	27/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	27/04/2021	Y S	SUBCON
PFPA (2706-90-3)	32.6	ng/l	27/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	27/04/2021	Y S	SUBCON
Total PFOS	7.26	ng/l	27/04/2021	Y S	SUBCON

Analyst Comments for 20335827:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2119644/2021**
Laboratory Number: **20335828**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435498 Surface Water SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **10** of **16**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	3.56	ng/l	23/04/2021	Y	S	SUBCON
Branched PFOS	1.64	ng/l	23/04/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	2.48	ng/l	23/04/2021	Y	S	SUBCON
PFBA (357-22-4)	15.3	ng/l	23/04/2021	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	23/04/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	23/04/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	23/04/2021	Y	S	SUBCON
PFHpA (375-85-9)	14	ng/l	23/04/2021	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	23/04/2021	Y	S	SUBCON
PFHxA (307-24-4)	20	ng/l	23/04/2021	Y	S	SUBCON
PFHxS (355-46-4)	2.24	ng/l	23/04/2021	Y	S	SUBCON
PFNA (375-95-1)	1.33	ng/l	23/04/2021	Y	S	SUBCON
PFOA (335-67-1)	3.92	ng/l	23/04/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	23/04/2021	Y	S	SUBCON
PFPA (2706-90-3)	42.2	ng/l	23/04/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	23/04/2021	Y	S	SUBCON
Total PFOS	4.12	ng/l	23/04/2021	Y	S	SUBCON

Analyst Comments for 20335828:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Date: **27 April 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2119644/2021**
Laboratory Number: **20335829**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435499 Surface Water SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **11** of **16**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	55.7	ng/l	23/04/2021	Y	S	SUBCON
Branched PFOS	7.97	ng/l	23/04/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	12.8	ng/l	23/04/2021	Y	S	SUBCON
PFBA (357-22-4)	23.1	ng/l	23/04/2021	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	23/04/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	23/04/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	23/04/2021	Y	S	SUBCON
PFHpA (375-85-9)	33.1	ng/l	23/04/2021	Y	S	SUBCON
PFHpS (375-92-8)	1.12	ng/l	23/04/2021	Y	S	SUBCON
PFHxA (307-24-4)	25.3	ng/l	23/04/2021	Y	S	SUBCON
PFHxS (355-46-4)	14.1	ng/l	23/04/2021	Y	S	SUBCON
PFNA (375-95-1)	3.87	ng/l	23/04/2021	Y	S	SUBCON
PFOA (335-67-1)	11.7	ng/l	23/04/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	23/04/2021	Y	S	SUBCON
PFPA (2706-90-3)	42.6	ng/l	23/04/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	23/04/2021	Y	S	SUBCON
Total PFOS	20.8	ng/l	23/04/2021	Y	S	SUBCON

Analyst Comments for 20335829:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2119644/2021**
Laboratory Number: **20335830**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435500 Surface Water SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **12** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	28.3	ng/l	23/04/2021	Y S	SUBCON
Branched PFOS	50.4	ng/l	23/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	44	ng/l	23/04/2021	Y S	SUBCON
PFBA (357-22-4)	30.5	ng/l	23/04/2021	Y S	SUBCON
PFBS (375-73-5)	4.31	ng/l	23/04/2021	Y S	SUBCON
PFDA (335-76-2)	1.3	ng/l	23/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHpA (375-85-9)	91.1	ng/l	23/04/2021	Y S	SUBCON
PFHpS (375-92-8)	5.96	ng/l	23/04/2021	Y S	SUBCON
PFHxA (307-24-4)	51.4	ng/l	23/04/2021	Y S	SUBCON
PFHxS (355-46-4)	98.3	ng/l	23/04/2021	Y S	SUBCON
PFNA (375-95-1)	21.6	ng/l	23/04/2021	Y S	SUBCON
PFOA (335-67-1)	55.1	ng/l	23/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	23/04/2021	Y S	SUBCON
PFPA (2706-90-3)	45.9	ng/l	23/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	23/04/2021	Y S	SUBCON
Total PFOS	94.4	ng/l	23/04/2021	Y S	SUBCON

Analyst Comments for 20335830:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

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Report Number: **COV/2119644/2021**
Laboratory Number: **20335831**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435501 Surface Water SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **13** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	23/04/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	23/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<1.3	ng/l	23/04/2021	Y S	SUBCON
PFBA (357-22-4)	9.41	ng/l	23/04/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	23/04/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	23/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	23/04/2021	Y S	SUBCON
PFHpA (375-85-9)	2.56	ng/l	23/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	23/04/2021	Y S	SUBCON
PFHxA (307-24-4)	2.83	ng/l	23/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	23/04/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	23/04/2021	Y S	SUBCON
PFOA (335-67-1)	<1.3	ng/l	23/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	23/04/2021	Y S	SUBCON
PFPA (2706-90-3)	5.27	ng/l	23/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	23/04/2021	Y S	SUBCON
Total PFOS	<2	ng/l	23/04/2021	Y S	SUBCON

Analyst Comments for 20335831:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2119644/2021**
Laboratory Number: **20335832**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435502 Surface Water SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **14** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	23/04/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	23/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.05	ng/l	23/04/2021	Y S	SUBCON
PFBA (357-22-4)	9.04	ng/l	23/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHpA (375-85-9)	1.81	ng/l	23/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHxA (307-24-4)	2.18	ng/l	23/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	23/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFOA (335-67-1)	1.56	ng/l	23/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	23/04/2021	Y S	SUBCON
PFPA (2706-90-3)	2.6	ng/l	23/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	23/04/2021	Y S	SUBCON
Total PFOS	1.05	ng/l	23/04/2021	Y S	SUBCON

Analyst Comments for 20335832:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2119644/2021**
Laboratory Number: **20335833**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435503 Ground Water GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **15** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	27/04/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	27/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<1.3	ng/l	27/04/2021	Y S	SUBCON
PFBA (357-22-4)	<8	ng/l	27/04/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	27/04/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	27/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	27/04/2021	Y S	SUBCON
PFHpA (375-85-9)	<2	ng/l	27/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	27/04/2021	Y S	SUBCON
PFHxA (307-24-4)	<2	ng/l	27/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	27/04/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	27/04/2021	Y S	SUBCON
PFOA (335-67-1)	<1.3	ng/l	27/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	27/04/2021	Y S	SUBCON
PFPA (2706-90-3)	<2	ng/l	27/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	27/04/2021	Y S	SUBCON
Total PFOS	<2	ng/l	27/04/2021	Y S	SUBCON

Analyst Comments for 20335833:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 30 of 36

Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2119644/2021**
Laboratory Number: **20335834**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4435504 Ground Water GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **09 April 2021**
Sample Received: **15 April 2021**
Analysis Complete: **27 April 2021**

Issue **1**
Sample **16** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	23/04/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	23/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	23/04/2021	Y S	SUBCON
PFBA (357-22-4)	17	ng/l	23/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	23/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHpA (375-85-9)	2.98	ng/l	23/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	23/04/2021	Y S	SUBCON
PFHxA (307-24-4)	6.54	ng/l	23/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	23/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	23/04/2021	Y S	SUBCON
PFOA (335-67-1)	0.941	ng/l	23/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	23/04/2021	Y S	SUBCON
PFPA (2706-90-3)	17.2	ng/l	23/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	23/04/2021	Y S	SUBCON
Total PFOS	<1	ng/l	23/04/2021	Y S	SUBCON

Analyst Comments for 20335834:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 32 of 36

Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**




ANALYST COMMENTS FOR REPORT COV/2119644/2021

Issue 1

This issue replaces
all previous issues

Date of Issue: **27 April 2021**

Sample No	Analysis Comments
20335819	
20335820	
20335821	
20335822	
20335823	
20335824	
20335825	
20335826	
20335827	
20335828	
20335829	
20335830	
20335831	
20335832	
20335833	
20335834	

Signed: 

Name: **D. Lewis**

Date: **27 April 2021**

Title: **Technical Inorganic Manager**




DETERMINAND COMMENTS FOR REPORT COV/2119644/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 27 April 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: D. Lewis	Date: 27 April 2021
	Title: Technical Inorganic Manager	

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ALS Environmental Ltd

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Off Albert Drive
Wakefield
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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

04 May 2021

Test Report: WAK/2121750/2021

Dear Ms Thomas

Analysis of your sample(s) received on 20 April 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: M. Forster

Title: Deputy Organic Manager



Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **04 May 2021**

Report Number: **WAK/2121750/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-562190421

Number of Samples
included in this report **14**

Job Received: **20 April 2021**

Number of Test Results
included in this report **238**

Analysis Commenced: **30 April 2021**

Signed:

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Page 1 of 32

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2121750/2021**
Laboratory Number: **20350365**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442039 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **1** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	04/05/2021	Y S	SUBCON
Branched PFOS	1.32	ng/l	04/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.35	ng/l	04/05/2021	Y S	SUBCON
PFBA (357-22-4)	31.8	ng/l	04/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHpA (375-85-9)	8.91	ng/l	04/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHxA (307-24-4)	8.93	ng/l	04/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	04/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFOA (335-67-1)	1.86	ng/l	04/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/05/2021	Y S	SUBCON
PFPA (2706-90-3)	12.4	ng/l	04/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/05/2021	Y S	SUBCON
Total PFOS	2.67	ng/l	04/05/2021	Y S	SUBCON

Analyst Comments for 20350365:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),


F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2121750/2021**
Laboratory Number: **20350366**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442040 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **2** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	04/05/2021	Y S	SUBCON
Branched PFOS	1.83	ng/l	04/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.01	ng/l	04/05/2021	Y S	SUBCON
PFBA (357-22-4)	37.5	ng/l	04/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHpA (375-85-9)	9.39	ng/l	04/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHxA (307-24-4)	15.7	ng/l	04/05/2021	Y S	SUBCON
PFHxS (355-46-4)	2.99	ng/l	04/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.3	ng/l	04/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/05/2021	Y S	SUBCON
PFPA (2706-90-3)	27.1	ng/l	04/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/05/2021	Y S	SUBCON
Total PFOS	2.84	ng/l	04/05/2021	Y S	SUBCON

Analyst Comments for 20350366:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2121750/2021**
Laboratory Number: **20350367**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442041 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **3** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	9.41	ng/l	04/05/2021	Y S	SUBCON
Branched PFOS	4.92	ng/l	04/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.06	ng/l	04/05/2021	Y S	SUBCON
PFBA (357-22-4)	46.8	ng/l	04/05/2021	Y S	SUBCON
PFBS (375-73-5)	1.54	ng/l	04/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHpA (375-85-9)	19.3	ng/l	04/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHxA (307-24-4)	42.5	ng/l	04/05/2021	Y S	SUBCON
PFHxS (355-46-4)	5.35	ng/l	04/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.34	ng/l	04/05/2021	Y S	SUBCON
PFOA (335-67-1)	4.99	ng/l	04/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/05/2021	Y S	SUBCON
PFPA (2706-90-3)	83.9	ng/l	04/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/05/2021	Y S	SUBCON
Total PFOS	8.99	ng/l	04/05/2021	Y S	SUBCON

Analyst Comments for 20350367:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2121750/2021**
Laboratory Number: **20350368**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442042 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **4** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	04/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	04/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.12	ng/l	04/05/2021	Y S	SUBCON
PFBA (357-22-4)	28.6	ng/l	04/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHpA (375-85-9)	4.95	ng/l	04/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHxA (307-24-4)	4.33	ng/l	04/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	04/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFOA (335-67-1)	1.65	ng/l	04/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/05/2021	Y S	SUBCON
PFPA (2706-90-3)	7.64	ng/l	04/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/05/2021	Y S	SUBCON
Total PFOS	1.12	ng/l	04/05/2021	Y S	SUBCON

Analyst Comments for 20350368:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),


F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2121750/2021**
Laboratory Number: **20350369**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442043 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **5** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	20.2	ng/l	04/05/2021	Y S	SUBCON
Branched PFOS	1.91	ng/l	04/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.94	ng/l	04/05/2021	Y S	SUBCON
PFBA (357-22-4)	<60	ng/l	04/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHpA (375-85-9)	9.18	ng/l	04/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHxA (307-24-4)	8.35	ng/l	04/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	04/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.12	ng/l	04/05/2021	Y S	SUBCON
PFOA (335-67-1)	3.02	ng/l	04/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/05/2021	Y S	SUBCON
PFPA (2706-90-3)	10.4	ng/l	04/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/05/2021	Y S	SUBCON
Total PFOS	6.85	ng/l	04/05/2021	Y S	SUBCON

Analyst Comments for 20350369:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2121750/2021**
Laboratory Number: **20350370**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442044 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **6** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	8.93	ng/l	04/05/2021	Y S	SUBCON
Branched PFOS	1.78	ng/l	04/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.17	ng/l	04/05/2021	Y S	SUBCON
PFBA (357-22-4)	45.3	ng/l	04/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHpA (375-85-9)	7.23	ng/l	04/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHxA (307-24-4)	10.1	ng/l	04/05/2021	Y S	SUBCON
PFHxS (355-46-4)	1.49	ng/l	04/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.06	ng/l	04/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.28	ng/l	04/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/05/2021	Y S	SUBCON
PFPA (2706-90-3)	13.8	ng/l	04/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/05/2021	Y S	SUBCON
Total PFOS	4.95	ng/l	04/05/2021	Y S	SUBCON

Analyst Comments for 20350370:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.


Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2121750/2021**
Laboratory Number: **20350371**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442045 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **7** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	155	ng/l	30/04/2021	Y S	SUBCON
Branched PFOS	7.6	ng/l	30/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	20.7	ng/l	30/04/2021	Y S	SUBCON
PFBA (357-22-4)	34.7	ng/l	30/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHpA (375-85-9)	55.7	ng/l	30/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHxA (307-24-4)	36.7	ng/l	30/04/2021	Y S	SUBCON
PFHxS (355-46-4)	8.18	ng/l	30/04/2021	Y S	SUBCON
PFNA (375-95-1)	3.72	ng/l	30/04/2021	Y S	SUBCON
PFOA (335-67-1)	13	ng/l	30/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/04/2021	Y S	SUBCON
PFFPA (2706-90-3)	74.5	ng/l	30/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/04/2021	Y S	SUBCON
Total PFOS	28.3	ng/l	30/04/2021	Y S	SUBCON

Analyst Comments for 20350371:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2121750/2021**
Laboratory Number: **20350372**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442046 SWML2**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **8** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/04/2021	Y S	SUBCON
Branched PFOS	2.01	ng/l	30/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.09	ng/l	30/04/2021	Y S	SUBCON
PFBA (357-22-4)	26.3	ng/l	30/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHpA (375-85-9)	9.26	ng/l	30/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHxA (307-24-4)	14.1	ng/l	30/04/2021	Y S	SUBCON
PFHxS (355-46-4)	2.64	ng/l	30/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/04/2021	Y S	SUBCON
PFOA (335-67-1)	2.22	ng/l	30/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/04/2021	Y S	SUBCON
PFPA (2706-90-3)	30.4	ng/l	30/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/04/2021	Y S	SUBCON
Total PFOS	3.1	ng/l	30/04/2021	Y S	SUBCON

Analyst Comments for 20350372:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),


F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2121750/2021**
Laboratory Number: **20350373**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442047 SWML3**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **9** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	12.8	ng/l	30/04/2021	Y S	SUBCON
Branched PFOS	3.52	ng/l	30/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	9.9	ng/l	30/04/2021	Y S	SUBCON
PFBA (357-22-4)	17.2	ng/l	30/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHpA (375-85-9)	16.1	ng/l	30/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHxA (307-24-4)	12.7	ng/l	30/04/2021	Y S	SUBCON
PFHxS (355-46-4)	1.8	ng/l	30/04/2021	Y S	SUBCON
PFNA (375-95-1)	1.91	ng/l	30/04/2021	Y S	SUBCON
PFOA (335-67-1)	4.71	ng/l	30/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/04/2021	Y S	SUBCON
PFPA (2706-90-3)	26.8	ng/l	30/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/04/2021	Y S	SUBCON
Total PFOS	13.4	ng/l	30/04/2021	Y S	SUBCON

Analyst Comments for 20350373:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2121750/2021**
Laboratory Number: **20350374**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442048 SWML4**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **10** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.65	ng/l	04/05/2021	Y S	SUBCON
Branched PFOS	1.99	ng/l	04/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.57	ng/l	04/05/2021	Y S	SUBCON
PFBA (357-22-4)	41	ng/l	04/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHpA (375-85-9)	11.3	ng/l	04/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHxA (307-24-4)	18	ng/l	04/05/2021	Y S	SUBCON
PFHxS (355-46-4)	2.22	ng/l	04/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.1	ng/l	04/05/2021	Y S	SUBCON
PFOA (335-67-1)	4.38	ng/l	04/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/05/2021	Y S	SUBCON
PFFPA (2706-90-3)	29.8	ng/l	04/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/05/2021	Y S	SUBCON
Total PFOS	4.56	ng/l	04/05/2021	Y S	SUBCON

Analyst Comments for 20350374:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2121750/2021**
Laboratory Number: **20350375**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442049 SWML5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **11** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	58.2	ng/l	04/05/2021	Y S	SUBCON
Branched PFOS	11	ng/l	04/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	13.2	ng/l	04/05/2021	Y S	SUBCON
PFBA (357-22-4)	47.5	ng/l	04/05/2021	Y S	SUBCON
PFBS (375-73-5)	1.36	ng/l	04/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	04/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	04/05/2021	Y S	SUBCON
PFHpA (375-85-9)	31.8	ng/l	04/05/2021	Y S	SUBCON
PFHpS (375-92-8)	1.22	ng/l	04/05/2021	Y S	SUBCON
PFHxA (307-24-4)	27.7	ng/l	04/05/2021	Y S	SUBCON
PFHxS (355-46-4)	18.3	ng/l	04/05/2021	Y S	SUBCON
PFNA (375-95-1)	4.25	ng/l	04/05/2021	Y S	SUBCON
PFOA (335-67-1)	13.2	ng/l	04/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	04/05/2021	Y S	SUBCON
PFFPA (2706-90-3)	38.5	ng/l	04/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	04/05/2021	Y S	SUBCON
Total PFOS	24.2	ng/l	04/05/2021	Y S	SUBCON

Analyst Comments for 20350375:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2121750/2021**
Laboratory Number: **20350376**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442050 SWML7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **12** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/04/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	30/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.901	ng/l	30/04/2021	Y S	SUBCON
PFBA (357-22-4)	7.52	ng/l	30/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHpA (375-85-9)	1.73	ng/l	30/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHxA (307-24-4)	2.25	ng/l	30/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	30/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/04/2021	Y S	SUBCON
PFOA (335-67-1)	1.03	ng/l	30/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/04/2021	Y S	SUBCON
PFPA (2706-90-3)	2.53	ng/l	30/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/04/2021	Y S	SUBCON
Total PFOS	<1	ng/l	30/04/2021	Y S	SUBCON

Analyst Comments for 20350376:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2121750/2021**
Laboratory Number: **20350377**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442051 SWML5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **13** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	22.7	ng/l	30/04/2021	Y S	SUBCON
Branched PFOS	61.7	ng/l	30/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	32.6	ng/l	30/04/2021	Y S	SUBCON
PFBA (357-22-4)	27.6	ng/l	30/04/2021	Y S	SUBCON
PFBS (375-73-5)	4.95	ng/l	30/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHpA (375-85-9)	84.8	ng/l	30/04/2021	Y S	SUBCON
PFHpS (375-92-8)	10.5	ng/l	30/04/2021	Y S	SUBCON
PFHxA (307-24-4)	46.9	ng/l	30/04/2021	Y S	SUBCON
PFHxS (355-46-4)	106	ng/l	30/04/2021	Y S	SUBCON
PFNA (375-95-1)	19.9	ng/l	30/04/2021	Y S	SUBCON
PFOA (335-67-1)	55.5	ng/l	30/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/04/2021	Y S	SUBCON
PFFPA (2706-90-3)	50	ng/l	30/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/04/2021	Y S	SUBCON
Total PFOS	94.3	ng/l	30/04/2021	Y S	SUBCON

Analyst Comments for 20350377:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2121750/2021**
Laboratory Number: **20350378**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4442052 SWML7**
Sample Matrix: **Surface Water**
Sample Date/Time: **16 April 2021**
Sample Received: **20 April 2021**
Analysis Complete: **04 May 2021**

Issue **1**
Sample **14** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/04/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	30/04/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.726	ng/l	30/04/2021	Y S	SUBCON
PFBA (357-22-4)	7.45	ng/l	30/04/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/04/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHpA (375-85-9)	1.85	ng/l	30/04/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/04/2021	Y S	SUBCON
PFHxA (307-24-4)	2.3	ng/l	30/04/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	30/04/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/04/2021	Y S	SUBCON
PFOA (335-67-1)	0.901	ng/l	30/04/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/04/2021	Y S	SUBCON
PFPA (2706-90-3)	3.86	ng/l	30/04/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/04/2021	Y S	SUBCON
Total PFOS	<1	ng/l	30/04/2021	Y S	SUBCON

Analyst Comments for 20350378:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**




ANALYST COMMENTS FOR REPORT WAK/2121750/2021

Issue 1

This issue replaces
all previous issues

Date of Issue: **04 May 2021**

Sample No	Analysis Comments
20350365	
20350366	
20350367	
20350368	
20350369	
20350370	
20350371	
20350372	
20350373	
20350374	
20350375	
20350376	
20350377	
20350378	

Signed: 

Name: **M. Forster**

Date: **04 May 2021**

Title: **Deputy Organic Manager**




DETERMINAND COMMENTS FOR REPORT WAK/2121750/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 04 May 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: M. Forster	Date: 04 May 2021
	Title: Deputy Organic Manager	

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

07 May 2021

Test Report: WAK/2125463/2021

Dear Ms Thomas

Analysis of your sample(s) received on 27 April 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

C. Ulph

Title:

Micro/Crypto/Logistics Manager



Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **07 May 2021**

Report Number: **WAK/2125463/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-459260421

Number of Samples
included in this report **16**

Job Received: **27 April 2021**

Number of Test Results
included in this report **272**

Analysis Commenced: **05 May 2021**

Signed:

Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375148**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451723 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **1** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	1.27	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.48	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	9.6	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	8.58	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	8.01	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	1.02	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	1.94	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	12.8	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	2.75	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375148:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 2 of 36

Signed:



Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375149**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451724 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **2** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	1.64	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.975	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	11.5	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	9.26	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	13.8	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	2.5	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	1.62	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	28.3	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	2.61	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375149:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed:



Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375150**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451725 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **3** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	5.26	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	4.67	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.43	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	18.3	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	1.27	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	13	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	35.1	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	4.2	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.44	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	4.23	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	72.1	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	8.09	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375150:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375151**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451726 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **4** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.18	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	7.22	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	9.14	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	5.33	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	1.61	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	9.38	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	1.18	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375151:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2125463/2021**
Laboratory Number: **20375152**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451727 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **5** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	17.9	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	1.76	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.82	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	<33	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	10.1	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	6.96	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	1.03	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.38	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	3.01	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFFPA (2706-90-3)	10	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	6.59	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375152:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2125463/2021**
Laboratory Number: **20375153**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451728 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **6** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	6.67	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	1.49	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.94	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	12.7	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	8.63	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	7.49	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	1.25	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.43	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.25	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	10.1	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	4.43	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375153:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2125463/2021**
Laboratory Number: **20375154**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451729 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **7** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	140	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	6.38	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	18.4	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	23	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	42.8	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	33.5	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	6.72	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	3.03	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	10.9	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	53	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	24.8	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375154:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2125463/2021**
Laboratory Number: **20375155**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451730 SWML2**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **8** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	1.46	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.02	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	11.4	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	8.08	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	12	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	2.39	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	1.67	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	22.5	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	2.48	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375155:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2125463/2021**
Laboratory Number: **20375156**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451731 SWML3**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **9** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	11.9	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	2.77	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	7.24	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	10.1	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	12.9	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	11.1	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	1.6	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.5	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	3.25	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	21.9	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	10	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375156:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375157**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451732 SWML4**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **10** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.91	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	1.63	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.01	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	11.9	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	13.1	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	17.3	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	1.99	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.45	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	3.64	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFFPA (2706-90-3)	34.6	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	4.64	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375157:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375158**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451733 SWML5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **11** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	48.3	ng/l	06/05/2021	Y S	SUBCON
Branched PFOS	8	ng/l	06/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	9.96	ng/l	06/05/2021	Y S	SUBCON
PFBA (357-22-4)	21.4	ng/l	06/05/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	06/05/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	06/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	06/05/2021	Y S	SUBCON
PFHpA (375-85-9)	19.7	ng/l	06/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	06/05/2021	Y S	SUBCON
PFHxA (307-24-4)	23	ng/l	06/05/2021	Y S	SUBCON
PFHxS (355-46-4)	15.3	ng/l	06/05/2021	Y S	SUBCON
PFNA (375-95-1)	3.23	ng/l	06/05/2021	Y S	SUBCON
PFOA (335-67-1)	11.8	ng/l	06/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	06/05/2021	Y S	SUBCON
PFFPA (2706-90-3)	34.4	ng/l	06/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	06/05/2021	Y S	SUBCON
Total PFOS	18	ng/l	06/05/2021	Y S	SUBCON

Analyst Comments for 20375158:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375159**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451734 SWML5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **12** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	17.1	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	71.8	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	29.1	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	20.9	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	5.15	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	69.6	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	8.58	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	42.2	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	90.2	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	15.4	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	47.8	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFFPA (2706-90-3)	33.4	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	101	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375159:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375160**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451735 SWML7**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **13** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	217	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	8.31	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	6.39	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	<3.25	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	7.62	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	<5	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375160:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375161**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451736 SWML7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **14** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.01	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	3.95	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	1.68	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	1.59	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	0.996	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	1.63	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	1.01	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375161:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375162**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451737 GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **15** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	2.6	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	1.09	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	0.743	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	<1	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375162:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2125463/2021**
Laboratory Number: **20375163**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4451738 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **24 April 2021**
Sample Received: **27 April 2021**
Analysis Complete: **07 May 2021**

Issue **1**
Sample **16** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/05/2021	Y S	SUBCON
PFBA (357-22-4)	11.1	ng/l	05/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHpA (375-85-9)	2.48	ng/l	05/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/05/2021	Y S	SUBCON
PFHxA (307-24-4)	4.67	ng/l	05/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/05/2021	Y S	SUBCON
PFOA (335-67-1)	0.779	ng/l	05/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/05/2021	Y S	SUBCON
PFPA (2706-90-3)	12.8	ng/l	05/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/05/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/05/2021	Y S	SUBCON

Analyst Comments for 20375163:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/2125463/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **07 May 2021**

Sample No	Analysis Comments
20375148	
20375149	
20375150	
20375151	
20375152	
20375153	
20375154	
20375155	
20375156	
20375157	
20375158	
20375159	
20375160	
20375161	
20375162	
20375163	

Signed:

Name: **C. Ulph**

Date: **07 May 2021**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/2125463/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 07 May 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 07 May 2021
	Title: Micro/Crypto/Logistics Manager	

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ALS Environmental Ltd
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Coventry
CV4 9GU

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

17 May 2021

Test Report: COV/2129158/2021

Dear Ms Thomas

Analysis of your sample(s) received on 05 May 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **17 May 2021**

Report Number: **COV/2129158/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-732040521

Number of Samples
included in this report **14**

Job Received: **05 May 2021**

Number of Test Results
included in this report **238**

Analysis Commenced: **11 May 2021**

Signed:

Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/2129158/2021**
Laboratory Number: **20399214**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463079 Surface Water P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **1** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	1.31	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.52	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	<16	ng/l	11/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	10.7	ng/l	11/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	9.51	ng/l	11/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.13	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	17	ng/l	11/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	2.84	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399214:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2129158/2021**
Laboratory Number: **20399215**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463080 Surface Water P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **2** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	1.95	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.15	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	<25	ng/l	11/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	9.11	ng/l	11/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	16.8	ng/l	11/05/2021	Y S	SUBCON
PFHxS (355-46-4)	3.01	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.62	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	36.6	ng/l	11/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	3.1	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399215:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2129158/2021**
Laboratory Number: **20399216**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463081 Surface Water P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **3** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	6.35	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	2.94	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.48	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	<30	ng/l	11/05/2021	Y S	SUBCON
PFBS (375-73-5)	1.44	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	14.6	ng/l	11/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	43.7	ng/l	11/05/2021	Y S	SUBCON
PFHxS (355-46-4)	4.2	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.39	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	5.48	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	96.6	ng/l	11/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	5.41	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399216:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2129158/2021**
Laboratory Number: **20399217**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463082 Surface Water P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **4** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.37	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	<23	ng/l	11/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	8.24	ng/l	11/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	6.46	ng/l	11/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.12	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	15.2	ng/l	11/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	1.37	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399217:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2129158/2021**
Laboratory Number: **20399218**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463083 Surface Water P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **5** of **14**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	5.7	ng/l	11/05/2021	Y	S	SUBCON
Branched PFOS	<2	ng/l	11/05/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	3.02	ng/l	11/05/2021	Y	S	SUBCON
PFBA (357-22-4)	<44	ng/l	11/05/2021	Y	S	SUBCON
PFBS (375-73-5)	<2	ng/l	11/05/2021	Y	S	SUBCON
PFDA (335-76-2)	<2	ng/l	11/05/2021	Y	S	SUBCON
PFDoA (307-55-1)	<2	ng/l	11/05/2021	Y	S	SUBCON
PFHpA (375-85-9)	7.45	ng/l	11/05/2021	Y	S	SUBCON
PFHpS (375-92-8)	<2	ng/l	11/05/2021	Y	S	SUBCON
PFHxA (307-24-4)	3.83	ng/l	11/05/2021	Y	S	SUBCON
PFHxS (355-46-4)	<2	ng/l	11/05/2021	Y	S	SUBCON
PFNA (375-95-1)	<2	ng/l	11/05/2021	Y	S	SUBCON
PFOA (335-67-1)	2.43	ng/l	11/05/2021	Y	S	SUBCON
PFOSA (754-91-6)	<4	ng/l	11/05/2021	Y	S	SUBCON
PFPA (2706-90-3)	7.69	ng/l	11/05/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	11/05/2021	Y	S	SUBCON
Total PFOS	3.02	ng/l	11/05/2021	Y	S	SUBCON

Analyst Comments for 20399218:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2129158/2021**
Laboratory Number: **20399219**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463084 Surface Water R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **6** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	<10	ng/l	17/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	<5	ng/l	17/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	<5	ng/l	17/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	1.41	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	<5	ng/l	17/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	<1	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399219:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2129158/2021**
Laboratory Number: **20399220**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463085 Surface Water R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **7** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.84	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.778	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	<10	ng/l	17/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	<5	ng/l	17/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	<5	ng/l	17/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	1.44	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	<5	ng/l	17/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	<1	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399220:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2129158/2021**
Laboratory Number: **20399221**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463086 Surface Water SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **8** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	1.52	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.46	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	<24	ng/l	11/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	7.99	ng/l	11/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	12	ng/l	11/05/2021	Y S	SUBCON
PFHxS (355-46-4)	2.08	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.5	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	26.6	ng/l	11/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	2.98	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399221:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2129158/2021**
Laboratory Number: **20399222**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463087 Surface Water SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **9** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	5.32	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.09	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	<10	ng/l	17/05/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	8.35	ng/l	11/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	4.1	ng/l	11/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.64	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	7.42	ng/l	11/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	3.09	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399222:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2129158/2021**
Laboratory Number: **20399223**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463088 Surface Water SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **10** of **14**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	<1	ng/l	11/05/2021	Y	S	SUBCON
Branched PFOS	<1	ng/l	11/05/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	0.678	ng/l	11/05/2021	Y	S	SUBCON
PFBA (357-22-4)	<12.5	ng/l	17/05/2021	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFHpA (375-85-9)	3.79	ng/l	11/05/2021	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFHxA (307-24-4)	2.15	ng/l	11/05/2021	Y	S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFNA (375-95-1)	1.01	ng/l	11/05/2021	Y	S	SUBCON
PFOA (335-67-1)	1.49	ng/l	11/05/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y	S	SUBCON
PFPA (2706-90-3)	2.46	ng/l	11/05/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y	S	SUBCON
Total PFOS	<1	ng/l	11/05/2021	Y	S	SUBCON

Analyst Comments for 20399223:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2129158/2021**
Laboratory Number: **20399224**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463089 Surface Water SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **11** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.78	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	2.07	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.88	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	<14	ng/l	17/05/2021	Y S	SUBCON
PFBS (375-73-5)	<3	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	9.65	ng/l	11/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	4.29	ng/l	11/05/2021	Y S	SUBCON
PFHxS (355-46-4)	1.43	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.87	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	3.41	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	4.45	ng/l	11/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	4.95	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399224:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2129158/2021**
Laboratory Number: **20399225**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463090 Surface Water SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **12** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	32.6	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	21.4	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	25.2	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	<29	ng/l	17/05/2021	Y S	SUBCON
PFBS (375-73-5)	1.61	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	1.95	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	54.8	ng/l	17/05/2021	Y S	SUBCON
PFHpS (375-92-8)	2.83	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	57.9	ng/l	17/05/2021	Y S	SUBCON
PFHxS (355-46-4)	41.5	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	9.27	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	25.3	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	25.4	ng/l	17/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	46.6	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399225:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2129158/2021**
Laboratory Number: **20399226**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463091 Surface Water SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **13** of **14**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	11/05/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	11/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<1.3	ng/l	11/05/2021	Y S	SUBCON
PFBA (357-22-4)	30	ng/l	17/05/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	11/05/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	11/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	11/05/2021	Y S	SUBCON
PFHpA (375-85-9)	12.9	ng/l	17/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	11/05/2021	Y S	SUBCON
PFHxA (307-24-4)	11	ng/l	17/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	11/05/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	11/05/2021	Y S	SUBCON
PFOA (335-67-1)	4.6	ng/l	11/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	11/05/2021	Y S	SUBCON
PFPA (2706-90-3)	13	ng/l	17/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	11/05/2021	Y S	SUBCON
Total PFOS	<2	ng/l	11/05/2021	Y S	SUBCON

Analyst Comments for 20399226:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2129158/2021**
Laboratory Number: **20399227**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4463092 Surface Water SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **29 April 2021**
Sample Received: **05 May 2021**
Analysis Complete: **17 May 2021**

Issue **1**
Sample **14** of **14**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	<1	ng/l	11/05/2021	Y	S	SUBCON
Branched PFOS	<1	ng/l	11/05/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	0.926	ng/l	11/05/2021	Y	S	SUBCON
PFBA (357-22-4)	<15	ng/l	11/05/2021	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFHpA (375-85-9)	1.63	ng/l	11/05/2021	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFHxA (307-24-4)	1.93	ng/l	11/05/2021	Y	S	SUBCON
PFHxS (355-46-4)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFNA (375-95-1)	<1	ng/l	11/05/2021	Y	S	SUBCON
PFOA (335-67-1)	1.65	ng/l	11/05/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	11/05/2021	Y	S	SUBCON
PFPA (2706-90-3)	2.05	ng/l	11/05/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	11/05/2021	Y	S	SUBCON
Total PFOS	<1	ng/l	11/05/2021	Y	S	SUBCON

Analyst Comments for 20399227:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**



ANALYST COMMENTS FOR REPORT COV/2129158/2021

Issue 1

This issue replaces
all previous issues

Date of Issue: **17 May 2021**

Sample No	Analysis Comments
20399214	
20399215	
20399216	
20399217	
20399218	
20399219	
20399220	
20399221	
20399222	
20399223	
20399224	
20399225	
20399226	
20399227	

Signed:

Name: **A. Zunzunegui**

Date: **17 May 2021**

Title: **Dept Organic Technical Manager**




DETERMINAND COMMENTS FOR REPORT COV/2129158/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 17 May 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: A. Zunzunegui	Date: 17 May 2021
	Title: Dept Organic Technical Manager	

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ALS Environmental Ltd

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Silkwood Park
Janes Hill
Off Albert Drive
Wakefield
WF5 9TG

T: +44 (0)1924 818100
F: +44 (0)1924 818101
www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

21 May 2021

Test Report: WAK/2132183/2021

Dear Ms Thomas

Analysis of your sample(s) received on 11 May 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

C. Ulph

Title:

Micro/Crypto/Logistics Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **21 May 2021**

Report Number: **WAK/2132183/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-608100521

Number of Samples
included in this report **16**

Job Received: **11 May 2021**

Number of Test Results
included in this report **272**

Analysis Commenced: **19 May 2021**

Signed:

Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420246**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472033 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **1** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.31	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	1.71	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.16	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	12.6	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	16.5	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	11.3	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.08	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.79	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/05/2021	Y S	SUBCON
PFFPA (2706-90-3)	24.3	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	3.88	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420246:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 2 of 36

Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420247**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472034 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **2** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	1.66	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.22	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	<10.5	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<3.5	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	11.9	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	12.8	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	2.25	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.37	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/05/2021	Y S	SUBCON
PFPA (2706-90-3)	23.7	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	2.87	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420247:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420248**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472035 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **3** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	24.9	ng/l	19/05/2021	Y S	SUBCON
Branched PFOS	10.7	ng/l	19/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	9.86	ng/l	19/05/2021	Y S	SUBCON
PFBA (357-22-4)	23.6	ng/l	19/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	19/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	19/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	19/05/2021	Y S	SUBCON
PFHpA (375-85-9)	23.3	ng/l	19/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	19/05/2021	Y S	SUBCON
PFHxA (307-24-4)	39.2	ng/l	19/05/2021	Y S	SUBCON
PFHxS (355-46-4)	5.85	ng/l	19/05/2021	Y S	SUBCON
PFNA (375-95-1)	2.95	ng/l	19/05/2021	Y S	SUBCON
PFOA (335-67-1)	7.93	ng/l	19/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	19/05/2021	Y S	SUBCON
PFPA (2706-90-3)	100	ng/l	19/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	19/05/2021	Y S	SUBCON
Total PFOS	20.5	ng/l	19/05/2021	Y S	SUBCON

Analyst Comments for 20420248:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2132183/2021**
Laboratory Number: **20420249**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472036 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **4** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.816	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	<12.5	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	24	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	10.1	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.59	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/05/2021	Y S	SUBCON
PFPA (2706-90-3)	21.6	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	<1	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420249:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2132183/2021**
Laboratory Number: **20420250**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472037 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **5** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	11.2	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	1.44	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	5.52	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	<11.5	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	14.9	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	6.61	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.59	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	3.3	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/05/2021	Y S	SUBCON
PFPA (2706-90-3)	10.4	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	6.96	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420250:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2132183/2021**
Laboratory Number: **20420251**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472038 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **6** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	10.3	ng/l	19/05/2021	Y S	SUBCON
Branched PFOS	1.87	ng/l	19/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.81	ng/l	19/05/2021	Y S	SUBCON
PFBA (357-22-4)	9.2	ng/l	19/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	19/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	19/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	19/05/2021	Y S	SUBCON
PFHpA (375-85-9)	10.3	ng/l	19/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	19/05/2021	Y S	SUBCON
PFHxA (307-24-4)	11.8	ng/l	19/05/2021	Y S	SUBCON
PFHxS (355-46-4)	1.67	ng/l	19/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	19/05/2021	Y S	SUBCON
PFOA (335-67-1)	2.68	ng/l	19/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	19/05/2021	Y S	SUBCON
PFPA (2706-90-3)	28.2	ng/l	19/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	19/05/2021	Y S	SUBCON
Total PFOS	4.68	ng/l	19/05/2021	Y S	SUBCON

Analyst Comments for 20420251:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2132183/2021**
Laboratory Number: **20420252**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472039 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **7** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	87.6	ng/l	19/05/2021	Y S	SUBCON
Branched PFOS	3.56	ng/l	19/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	12.9	ng/l	19/05/2021	Y S	SUBCON
PFBA (357-22-4)	<24.5	ng/l	19/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	19/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1.2	ng/l	19/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	19/05/2021	Y S	SUBCON
PFHpA (375-85-9)	40.8	ng/l	19/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	19/05/2021	Y S	SUBCON
PFHxA (307-24-4)	20.7	ng/l	19/05/2021	Y S	SUBCON
PFHxS (355-46-4)	3.96	ng/l	19/05/2021	Y S	SUBCON
PFNA (375-95-1)	2.56	ng/l	19/05/2021	Y S	SUBCON
PFOA (335-67-1)	7.77	ng/l	19/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	19/05/2021	Y S	SUBCON
PFPA (2706-90-3)	33.2	ng/l	19/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	19/05/2021	Y S	SUBCON
Total PFOS	16.4	ng/l	19/05/2021	Y S	SUBCON

Analyst Comments for 20420252:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

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ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420253**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472040 SWML2**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **8** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.75	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	1.61	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.06	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	9.95	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	10.8	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	10.5	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	2.03	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	1.83	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/05/2021	Y S	SUBCON
PFPA (2706-90-3)	29.6	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	2.67	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420253:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420254**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472041 SWML3**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **9** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	16.5	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	2.51	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	9.73	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	<12.5	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	15.1	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	9.14	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	2.07	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	3.82	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	20/05/2021	Y S	SUBCON
PFPA (2706-90-3)	15	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	12.2	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420254:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420255**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472042 SWML4**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **10** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	4.8	ng/l	19/05/2021	Y S	SUBCON
Branched PFOS	1.94	ng/l	19/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.49	ng/l	19/05/2021	Y S	SUBCON
PFBA (357-22-4)	11.2	ng/l	19/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	19/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	19/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	19/05/2021	Y S	SUBCON
PFHpA (375-85-9)	14.5	ng/l	19/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	19/05/2021	Y S	SUBCON
PFHxA (307-24-4)	16.2	ng/l	19/05/2021	Y S	SUBCON
PFHxS (355-46-4)	2	ng/l	19/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.21	ng/l	19/05/2021	Y S	SUBCON
PFOA (335-67-1)	3.67	ng/l	19/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	19/05/2021	Y S	SUBCON
PFPA (2706-90-3)	41.9	ng/l	19/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	19/05/2021	Y S	SUBCON
Total PFOS	4.43	ng/l	19/05/2021	Y S	SUBCON

Analyst Comments for 20420255:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420256**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472043 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **11** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	52.8	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	8.27	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	12.2	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	18.6	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1.5	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	35.8	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	23.3	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	12.3	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	2.94	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	9.79	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/05/2021	Y S	SUBCON
PFFPA (2706-90-3)	37.7	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	20.5	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420256:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420257**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472044 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **12** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	24.5	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	36.8	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	33.8	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	23.1	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	3.16	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1.5	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	75.3	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	3.83	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	48	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	68.9	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	13.8	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	36	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/05/2021	Y S	SUBCON
PFPA (2706-90-3)	36.8	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	70.6	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420257:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420258**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472045 SWML7**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **13** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	19/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	19/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.29	ng/l	19/05/2021	Y S	SUBCON
PFBA (357-22-4)	<13.5	ng/l	19/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	19/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	19/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	19/05/2021	Y S	SUBCON
PFHpA (375-85-9)	21	ng/l	19/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	19/05/2021	Y S	SUBCON
PFHxA (307-24-4)	9.32	ng/l	19/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	19/05/2021	Y S	SUBCON
PFNA (375-95-1)	1.06	ng/l	19/05/2021	Y S	SUBCON
PFOA (335-67-1)	3.14	ng/l	19/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	19/05/2021	Y S	SUBCON
PFFPA (2706-90-3)	14.9	ng/l	19/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	19/05/2021	Y S	SUBCON
Total PFOS	1.29	ng/l	19/05/2021	Y S	SUBCON

Analyst Comments for 20420258:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420259**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472046 SWML7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **14** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	<8.5	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	3.06	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	1.91	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	1.39	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/05/2021	Y S	SUBCON
PFPA (2706-90-3)	3.25	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	<1	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420259:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420260**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472047 GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **15** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<1.3	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	<4	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	<2	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	<2	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	<1.3	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	20/05/2021	Y S	SUBCON
PFPA (2706-90-3)	<2	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	<2	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420260:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2132183/2021**
Laboratory Number: **20420261**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4472048 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **07 May 2021**
Sample Received: **11 May 2021**
Analysis Complete: **21 May 2021**

Issue **1**
Sample **16** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	20/05/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	20/05/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	20/05/2021	Y S	SUBCON
PFBA (357-22-4)	14.9	ng/l	20/05/2021	Y S	SUBCON
PFBS (375-73-5)	1.67	ng/l	20/05/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	20/05/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHpA (375-85-9)	3.43	ng/l	20/05/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	20/05/2021	Y S	SUBCON
PFHxA (307-24-4)	6.74	ng/l	20/05/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	20/05/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	20/05/2021	Y S	SUBCON
PFOA (335-67-1)	0.902	ng/l	20/05/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	20/05/2021	Y S	SUBCON
PFPA (2706-90-3)	18.6	ng/l	20/05/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	20/05/2021	Y S	SUBCON
Total PFOS	<1	ng/l	20/05/2021	Y S	SUBCON

Analyst Comments for 20420261:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/2132183/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **21 May 2021**

Sample No	Analysis Comments
20420246	
20420247	
20420248	
20420249	
20420250	
20420251	
20420252	
20420253	
20420254	
20420255	
20420256	
20420257	
20420258	
20420259	
20420260	
20420261	

Signed:

Name: **C. Ulph**

Date: **21 May 2021**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/2132183/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 21 May 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 21 May 2021
	Title: Micro/Crypto/Logistics Manager	

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

03 June 2021

Test Report: WAK/2139666/2021

Dear Ms Thomas

Analysis of your sample(s) received on 25 May 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: M. Forster

Title: Deputy Organic Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **03 June 2021**

Report Number: **WAK/2139666/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-567240521

Number of Samples
included in this report **16**

Job Received: **25 May 2021**

Number of Test Results
included in this report **272**

Analysis Commenced: **01 June 2021**

Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2139666/2021**
Laboratory Number: **20469014**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492816 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **1** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	45.9	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	6.6	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	5.72	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.88	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	01/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	10.4	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	<2	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469014:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

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Report Number: **WAK/2139666/2021**
Laboratory Number: **20469015**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492817 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **2** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	1.06	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.19	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	15.8	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	4.87	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	5.99	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.45	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	13.6	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	2.24	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469015:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),


F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139666/2021**
Laboratory Number: **20469016**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492818 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **3** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	14.9	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	7.63	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	8.46	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	34.7	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	1.46	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	14.7	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	44.3	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	6.31	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.76	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	4.65	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	91.6	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	16.1	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469016:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.


Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139666/2021**
Laboratory Number: **20469017**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492819 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **4** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.32	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.9	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	10.9	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	1.14	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	6.02	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	6.9	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.62	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	13.4	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	1.49	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	1.9	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469017:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),


F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139666/2021**
Laboratory Number: **20469018**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492820 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **5** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	31.1	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	1.8	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	5.13	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	21.8	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	14	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	7.92	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	1.03	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.05	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.07	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	11.9	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	6.94	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469018:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139666/2021**
Laboratory Number: **20469019**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492821 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **6** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	6.64	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	1.91	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.99	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	11	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	7.91	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	7.53	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	1.09	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.57	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.46	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	11.8	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	5.9	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469019:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139666/2021**
Laboratory Number: **20469020**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492822 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **7** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	156	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	7.82	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	23.2	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	29.2	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	41.9	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	36.6	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	7	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	3.53	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	11.7	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	78.4	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	31	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469020:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139666/2021**
Laboratory Number: **20469021**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492823 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **8** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	1.18	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.21	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	15.3	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	6.44	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	8.38	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	1.23	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.63	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	19.3	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	2.39	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469021:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2139666/2021**
Laboratory Number: **20469022**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492824 SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **9** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	18.4	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	3.41	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	11.4	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	20	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	15.3	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	15.6	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	4.97	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	30.8	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	14.8	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469022:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2139666/2021**
Laboratory Number: **20469023**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492825 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **10** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.85	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	2.3	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.67	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	23.2	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	12.7	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	21.7	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.33	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.13	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.73	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	45.4	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	4.97	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469023:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2139666/2021**
Laboratory Number: **20469024**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492826 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **11** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	60.3	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	11.8	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	15.1	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	43.1	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	1.2	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	28.2	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	1.01	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	32.6	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	18.4	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	4.4	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	14	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	57.6	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	26.8	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469024:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2139666/2021**
Laboratory Number: **20469025**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492827 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **12** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	46.2	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	43.4	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	42.8	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	59	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	6.23	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	1.05	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	47.8	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	4.03	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	57.1	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	74.5	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	13.7	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	41.7	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	02/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	42.3	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	86.3	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469025:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2139666/2021**
Laboratory Number: **20469026**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492828 SWML 7A**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **13** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.02	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	<13	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	15.9	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	6.27	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.56	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	<7.5	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	1.02	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469026:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2139666/2021**
Laboratory Number: **20469027**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492829 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **14** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.42	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	<9.5	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	2.79	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	1.98	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.76	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	<2	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	1.42	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469027:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2139666/2021**
Laboratory Number: **20469028**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492830 GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **15** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.7	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	34.8	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	2.55	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	2.15	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.69	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	2.46	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	<2	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469028:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2139666/2021**
Laboratory Number: **20469029**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492831 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **14 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **16** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.949	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	22	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	3.79	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	3.34	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.08	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	8.44	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469029:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**




ANALYST COMMENTS FOR REPORT WAK/2139666/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **03 June 2021**

Sample No	Analysis Comments
20469014	
20469015	
20469016	
20469017	
20469018	
20469019	
20469020	
20469021	
20469022	
20469023	
20469024	
20469025	
20469026	
20469027	
20469028	
20469029	

Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**




DETERMINAND COMMENTS FOR REPORT WAK/2139666/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 03 June 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: M. Forster	Date: 03 June 2021
	Title: Deputy Organic Manager	

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Unit 11
Silkwood Park
Janes Hill
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WF5 9TG

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

03 June 2021

Test Report: WAK/2139663/2021

Dear Ms Thomas

Analysis of your sample(s) received on 25 May 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: M. Forster

Title: Deputy Organic Manager



Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **03 June 2021**

Report Number: **WAK/2139663/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-557240521

Number of Samples
included in this report **16**

Job Received: **25 May 2021**

Number of Test Results
included in this report **272**

Analysis Commenced: **01 June 2021**

Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2139663/2021**
Laboratory Number: **20468992**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492790 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **1** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.15	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	2.11	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.4	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	21.5	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	19.7	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	13.5	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	1.03	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.4	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.33	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	22.6	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	4.51	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20468992:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20468993**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492791 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **2** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	1.14	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.962	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	15.2	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	6.2	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	8.44	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	1.67	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.23	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	17.2	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	2.1	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20468993:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),


F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20468994**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492792 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **3** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	4	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	2.31	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.62	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	25.9	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	17.2	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	21.8	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.85	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.43	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	4.78	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	50	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	5.94	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20468994:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20468995**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492793 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **4** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	15.4	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	12.4	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	8.36	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.62	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	18.5	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	1	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20468995:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20468996**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492794 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **5** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	10.7	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.49	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	13.7	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	5.73	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	3.46	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.44	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	5.99	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	2.49	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20468996:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20468997**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492795 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **6** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	29.2	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	<1	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20468997:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.


Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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ANALYSED BY



Report Number: **WAK/2139663/2021**
Laboratory Number: **20468998**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492796 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **7** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	51.7	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	2.79	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	7.08	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	25.8	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	14.8	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	14.6	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.8	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.58	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	4.43	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	27.2	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	9.87	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20468998:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20468999**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492797 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **8** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.92	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	1.43	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.61	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	9.95	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	7.01	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	7.44	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	1.66	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.95	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	02/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	15.7	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	3.04	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20468999:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20469000**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492798 SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **9** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	11.5	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	1.1	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.37	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	17.5	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	7.02	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	4.26	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.82	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	7.35	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	4.47	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469000:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20469001**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492799 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **10** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	5.9	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	2.05	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	1.95	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	0.788	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	4.05	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469001:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20469002**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492800 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **11** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	5.68	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	2.24	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.84	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	22.8	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	5.17	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	5.45	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.5	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.31	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	6.04	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	6.07	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469002:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20469003**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492801 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **12** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	12.2	ng/l	01/06/2021	Y S	SUBCON
Branched PFOS	12.9	ng/l	01/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	17.6	ng/l	01/06/2021	Y S	SUBCON
PFBA (357-22-4)	39.4	ng/l	01/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHpA (375-85-9)	9.32	ng/l	01/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/06/2021	Y S	SUBCON
PFHxA (307-24-4)	10.2	ng/l	01/06/2021	Y S	SUBCON
PFHxS (355-46-4)	9.5	ng/l	01/06/2021	Y S	SUBCON
PFNA (375-95-1)	2.45	ng/l	01/06/2021	Y S	SUBCON
PFOA (335-67-1)	7.17	ng/l	01/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/06/2021	Y S	SUBCON
PFPA (2706-90-3)	6.59	ng/l	01/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/06/2021	Y S	SUBCON
Total PFOS	30.5	ng/l	01/06/2021	Y S	SUBCON

Analyst Comments for 20469003:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20469004**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492802 SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **13** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.17	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	<12.5	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	15.6	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	7.56	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.21	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	<10.5	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	1.17	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469004:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20469005**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492803 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **14** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.51	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	<11.5	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	4.12	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	<2	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.11	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	<19	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	4.51	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469005:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20469006**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492804 GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **15** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.97	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	<5	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	<2	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	<2	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.86	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	<2	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	2.97	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469006:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**

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Report Number: **WAK/2139663/2021**
Laboratory Number: **20469007**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4492805 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **21 May 2021**
Sample Received: **25 May 2021**
Analysis Complete: **03 June 2021**

Issue **1**
Sample **16** of **16**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	02/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	02/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.928	ng/l	02/06/2021	Y S	SUBCON
PFBA (357-22-4)	14.3	ng/l	02/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	02/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHpA (375-85-9)	3.27	ng/l	02/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	02/06/2021	Y S	SUBCON
PFHxA (307-24-4)	4.85	ng/l	02/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	02/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	02/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.77	ng/l	02/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	02/06/2021	Y S	SUBCON
PFPA (2706-90-3)	14.5	ng/l	02/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	02/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	02/06/2021	Y S	SUBCON

Analyst Comments for 20469007:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.


For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**




ANALYST COMMENTS FOR REPORT WAK/2139663/2021

Issue 1

This issue replaces
all previous issues

Date of Issue: **03 June 2021**

Sample No	Analysis Comments
20468992	
20468993	
20468994	
20468995	
20468996	
20468997	
20468998	
20468999	
20469000	
20469001	
20469002	
20469003	
20469004	
20469005	
20469006	
20469007	

Signed: 

Name: **M. Forster**

Date: **03 June 2021**

Title: **Deputy Organic Manager**




DETERMINAND COMMENTS FOR REPORT WAK/2139663/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 03 June 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: M. Forster	Date: 03 June 2021
	Title: Deputy Organic Manager	

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Off Albert Drive
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WF5 9TG

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

08 June 2021

Test Report: WAK/2142663/2021

Dear Ms Thomas

Analysis of your sample(s) received on 01 June 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

C. Ulph

Title:

Micro/Crypto/Logistics Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **08 June 2021**

Report Number: **WAK/2142663/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-435310521

Number of Samples
included in this report **15**

Job Received: **01 June 2021**

Number of Test Results
included in this report **255**

Analysis Commenced: **08 June 2021**

Signed:

Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489886**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503335 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **1** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.22	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	1.9	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	27.5	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	20	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	12.8	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	1.05	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.15	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.94	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	21.9	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	3.89	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489886:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489887**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503336 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **2** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	1.6	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.892	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	13.7	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	12	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	15.5	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.45	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.05	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	30.6	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	2.5	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489887:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489888**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503337 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **3** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	<2	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	<1.5	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	<1	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489888:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489889**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503338 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **4** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.931	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	22.2	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	12.1	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	8.99	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.6	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	20.2	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489889:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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Page 8 of 34

Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489890**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503339 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **5** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	13.6	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.8	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	24.5	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	5.82	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	4.53	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.37	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	8.13	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	2.8	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489890:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489891**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503340 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **6** of **15**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	87.7	ng/l	08/06/2021	Y	S	SUBCON
Branched PFOS	5.02	ng/l	08/06/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	13.5	ng/l	08/06/2021	Y	S	SUBCON
PFBA (357-22-4)	31.5	ng/l	08/06/2021	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y	S	SUBCON
PFHpA (375-85-9)	24	ng/l	08/06/2021	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y	S	SUBCON
PFHxA (307-24-4)	20.1	ng/l	08/06/2021	Y	S	SUBCON
PFHxS (355-46-4)	4.63	ng/l	08/06/2021	Y	S	SUBCON
PFNA (375-95-1)	2.24	ng/l	08/06/2021	Y	S	SUBCON
PFOA (335-67-1)	7.51	ng/l	08/06/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y	S	SUBCON
PFPA (2706-90-3)	38.5	ng/l	08/06/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y	S	SUBCON
Total PFOS	18.6	ng/l	08/06/2021	Y	S	SUBCON

Analyst Comments for 20489891:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489892**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503341 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **7** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.46	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	2.47	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.68	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	20.8	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	13.6	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	19.7	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.32	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.16	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.28	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	44.4	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	5.15	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489892:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489893**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503342 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **8** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	49.9	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	9.98	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	14.4	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	19.1	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	29	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	25.1	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	13.7	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	3.67	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	10.2	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	39.6	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	24.4	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489893:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489894**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503343 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **9** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	22.4	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	41.9	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	36.8	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	46.9	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	4.74	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	60.4	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	4.26	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	57.3	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	83.9	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	13.8	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	42	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	43.2	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	78.7	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489894:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2142663/2021**
Laboratory Number: **20489895**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503344 SWML 7A**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **10** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	15.5	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	2.92	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	3.58	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	0.831	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	6.68	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489895:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2142663/2021**
Laboratory Number: **20489896**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503345 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **11** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.871	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	19.3	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	3.52	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	2.48	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.26	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	3.54	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489896:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489897**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503346 GWML 4**
Sample Matrix: **Ground Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **12** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.84	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	5.93	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	2.46	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	<2	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.4	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	<2	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	<2	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489897:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489898**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503347 GWML 5**
Sample Matrix: **Ground Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **13** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	20.7	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	2.92	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	4.51	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	0.717	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	13.6	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489898:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489899**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503462 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **14** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	1.84	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.54	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	20.2	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	12.3	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	12	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.11	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.82	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	25.5	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	3.38	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489899:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2142663/2021**
Laboratory Number: **20489900**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4503463 SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **27 May 2021**
Sample Received: **01 June 2021**
Analysis Complete: **08 June 2021**

Issue **1**
Sample **15** of **15**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	13.2	ng/l	08/06/2021	Y S	SUBCON
Branched PFOS	1.32	ng/l	08/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.85	ng/l	08/06/2021	Y S	SUBCON
PFBA (357-22-4)	26	ng/l	08/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	08/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHpA (375-85-9)	9.01	ng/l	08/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	08/06/2021	Y S	SUBCON
PFHxA (307-24-4)	6.18	ng/l	08/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	08/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	08/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.03	ng/l	08/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	08/06/2021	Y S	SUBCON
PFPA (2706-90-3)	13.9	ng/l	08/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	08/06/2021	Y S	SUBCON
Total PFOS	5.17	ng/l	08/06/2021	Y S	SUBCON

Analyst Comments for 20489900:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Unit 11, Silkwood Park, Janes Hill, Off Albert Drive, Wakefield, WF5 9TG
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Page 30 of 34

Signed:



Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/2142663/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **08 June 2021**

Sample No	Analysis Comments
20489886	
20489887	
20489888	
20489889	
20489890	
20489891	
20489892	
20489893	
20489894	
20489895	
20489896	
20489897	
20489898	
20489899	
20489900	

Signed:

Name: **C. Ulph**

Date: **08 June 2021**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/2142663/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 08 June 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 08 June 2021
	Title: Micro/Crypto/Logistics Manager	

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ALS Environmental Ltd

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

22 June 2021

Test Report: COV/2146808/2021

Dear Ms Thomas

Analysis of your sample(s) received on 09 June 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **22 June 2021**

Report Number: **COV/2146808/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-692080621

Number of Samples
included in this report **20**

Job Received: **09 June 2021**

Number of Test Results
included in this report **340**

Analysis Commenced: **15 June 2021**

Signed:

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 44

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517738**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515377 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **1** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.48	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	1.67	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.64	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<12.5	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	14.7	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	10.7	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.26	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.87	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	23.5	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	3.32	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517738:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517739**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515378 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **2** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	1.47	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.908	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<14	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	8.35	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	13.1	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.29	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.19	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	25.6	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	2.38	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517739:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a rectangular box.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517740**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515379 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **3** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	11.4	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	5.95	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	6.87	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<20	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	13.6	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	33.6	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	5.64	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.72	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.95	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	73.9	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	12.8	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517740:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517741**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515380 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **4** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	1.27	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.873	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<17	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	24.1	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	22	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.12	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.94	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	41.5	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	2.14	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517741:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517742**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515381 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **5** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	20.6	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	1.74	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.46	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<7	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	8.07	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	7.15	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	1.01	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.03	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.88	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	19.8	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	6.19	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517742:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517743**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515382 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **6** of **20**

Test Description	Result	Units	Analysis Date	Accreditation		Method
6:2PTS (27619-97-2)	3.39	ng/l	15/06/2021	Y	S	SUBCON
Branched PFOS	2.28	ng/l	15/06/2021	Y	S	SUBCON
Linear PFOS(1763-23-1)	3.97	ng/l	15/06/2021	Y	S	SUBCON
PFBA (357-22-4)	<9	ng/l	15/06/2021	Y	S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/06/2021	Y	S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y	S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y	S	SUBCON
PFHpA (375-85-9)	5.53	ng/l	15/06/2021	Y	S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y	S	SUBCON
PFHxA (307-24-4)	8.19	ng/l	15/06/2021	Y	S	SUBCON
PFHxS (355-46-4)	1.22	ng/l	15/06/2021	Y	S	SUBCON
PFNA (375-95-1)	1.16	ng/l	15/06/2021	Y	S	SUBCON
PFOA (335-67-1)	1.89	ng/l	15/06/2021	Y	S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y	S	SUBCON
PFPA (2706-90-3)	21.3	ng/l	15/06/2021	Y	S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y	S	SUBCON
Total PFOS	6.25	ng/l	15/06/2021	Y	S	SUBCON

Analyst Comments for 20517743:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a circular scribble.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517744**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515383 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **7** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	128	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	6.61	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	18.6	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<24	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	32.1	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	27.4	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	5.54	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	3.04	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	10.4	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	66.1	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	25.2	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517744:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517745**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515384 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **8** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<18.5	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	9.26	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	14.5	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.69	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.37	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	28.8	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	<3	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517745:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517746**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515385 SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **9** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	13.1	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	3.18	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	10.1	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<27	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	13.3	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	15.1	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	2.31	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	4.48	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	29.7	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	13.2	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517746:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2146808/2021**
Laboratory Number: **20517747**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515386 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **10** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.46	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<29	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	9.66	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	18.1	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.15	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.8	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	40.8	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	2.46	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517747:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2146808/2021**
Laboratory Number: **20517748**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515387 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **11** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	60.2	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	12	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	17.5	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<20	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	27.1	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	26.9	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	18.7	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	4.29	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	13.3	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	48.8	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	29.5	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517748:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517749**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515388 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **12** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	35	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	52	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	70.7	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	74.6	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	6.78	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	60.7	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	3.67	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	56.6	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	73.6	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	20.8	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	54.9	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	2.35	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	56.4	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	123	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517749:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

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Report Number: **COV/2146808/2021**
Laboratory Number: **20517750**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515389 SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **13** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<1.3	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	60.3	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	10.5	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	6.02	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.66	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	10.3	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	<2	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517750:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517751**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515390 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **14** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	2.21	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<1.3	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<24	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	3.08	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	2.3	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.86	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	4.18	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	2.21	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517751:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

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Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

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Report Number: **COV/2146808/2021**
Laboratory Number: **20517752**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515391 MH 1**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **15** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.92	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	65.2	ng/l	21/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	27.3	ng/l	21/06/2021	Y S	SUBCON
PFBA (357-22-4)	<21	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	1.99	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	20.2	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	7.63	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<5.5	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1.5	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	26.9	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	7.82	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	92.5	ng/l	21/06/2021	Y S	SUBCON

Analyst Comments for 20517752:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 30 of 44

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a circular scribble.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517753**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515392 MH 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **16** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	12.8	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	11.2	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	20.9	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<42	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	2.65	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	14.8	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	36.5	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	8.3	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	2.5	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	8.27	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	24.7	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	32.1	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517753:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517754**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515393 MH 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **17** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	101	ng/l	21/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	35.4	ng/l	21/06/2021	Y S	SUBCON
PFBA (357-22-4)	<11	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	28.5	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	6.73	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	51.5	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	5.04	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	136	ng/l	21/06/2021	Y S	SUBCON

Analyst Comments for 20517754:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517755**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515394 MH 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **18** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	29.6	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	21.9	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	59.7	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	76.2	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	5.23	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	25.8	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	1.12	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	36.4	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	8.61	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	10.2	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	22.4	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	4.22	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	27.3	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	81.6	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517755:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 36 of 44

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517756**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515395 GW 4**
Sample Matrix: **Ground Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **19** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.859	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<7.5	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	1.2	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	2.5	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	1.12	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.46	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	1.88	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517756:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2146808/2021**
Laboratory Number: **20517757**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4515396 GW 5**
Sample Matrix: **Ground Water**
Sample Date/Time: **08 June 2021**
Sample Received: **09 June 2021**
Analysis Complete: **22 June 2021**

Issue **1**
Sample **20** of **20**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	15/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	15/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	15/06/2021	Y S	SUBCON
PFBA (357-22-4)	<12.5	ng/l	15/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	15/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHpA (375-85-9)	2.18	ng/l	15/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	15/06/2021	Y S	SUBCON
PFHxA (307-24-4)	3.81	ng/l	15/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	15/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	15/06/2021	Y S	SUBCON
PFOA (335-67-1)	0.807	ng/l	15/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	15/06/2021	Y S	SUBCON
PFPA (2706-90-3)	12.1	ng/l	15/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	15/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	15/06/2021	Y S	SUBCON

Analyst Comments for 20517757:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', enclosed within a thin black rectangular border.

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**



ANALYST COMMENTS FOR REPORT COV/2146808/2021

Issue 1

This issue replaces
all previous issues

Date of Issue: **22 June 2021**

Sample No	Analysis Comments
20517738	
20517739	
20517740	
20517741	
20517742	
20517743	
20517744	
20517745	
20517746	
20517747	
20517748	
20517749	
20517750	
20517751	
20517752	
20517753	
20517754	
20517755	
20517756	
20517757	

Signed:

Name: **A. Zunzunegui**

Date: **22 June 2021**

Title: **Dept Organic Technical Manager**




DETERMINAND COMMENTS FOR REPORT COV/2146808/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 22 June 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: A. Zunzunegui	Date: 22 June 2021
	Title: Dept Organic Technical Manager	

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ALS Environmental Ltd

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Janes Hill
Off Albert Drive
Wakefield
WF5 9TG

T: +44 (0)1924 818100
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www.alsenvironmental.co.uk

02 July 2021

Test Report: WAK/2153085/2021

Dear Ms Thomas

Analysis of your sample(s) received on 22 June 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)1924 818100 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: C. Ulph

Title: Micro/Crypto/Logistics Manager



Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **02 July 2021**

Report Number: **WAK/2153085/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-825180621

Number of Samples
included in this report **37**

Job Received: **22 June 2021**

Number of Test Results
included in this report **629**

Analysis Commenced: **30 June 2021**

Signed:

Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

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Page 1 of 78

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2153085/2021**
Laboratory Number: **20559136**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534046 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **1** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	1.69	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.58	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	14.8	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	13.8	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	9.05	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.71	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	15.2	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	3.26	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559136:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Tel:+44 (0)1924 818100 Fax:+44 (0)1924 818101

Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2153085/2021**
Laboratory Number: **20559137**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534047 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **2** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	1.85	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.29	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	14.9	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	8.06	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	12.6	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.49	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.16	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	25.5	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	3.14	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559137:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2153085/2021**
Laboratory Number: **20559138**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534048 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **3** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.09	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	1.69	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.2	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	14.2	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	10.5	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	19.2	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	1.73	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	1.26	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.94	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	56.2	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	4.89	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559138:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559139**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534049 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **4** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	1.42	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.957	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	22.3	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	28.7	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	24.4	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	2.1	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.2	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	38.1	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	2.37	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559139:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559140**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534050 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **5** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	9.37	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	1.73	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.13	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	<10	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	7.86	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	6.72	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	1.07	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.24	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.95	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	10.2	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	5.86	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559140:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559141**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534051 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **6** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.78	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.46	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	14.5	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	5.26	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	3.68	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	1.72	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	2.83	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	1.46	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559141:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559142**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534052 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **7** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	147	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	6.23	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	17.5	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	<45	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	43.4	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	30.7	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	5.68	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	2.6	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	11.4	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	31.4	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	23.7	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559142:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559143**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534053 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **8** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	2.74	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.12	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	16.3	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	9.61	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	17.5	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	3.14	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	3.34	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	33.4	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	4.87	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559143:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559144**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534054 SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **9** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	36.6	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	<10	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	33.2	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	29.1	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<10	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<10	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<10	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	12.8	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<10	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	17	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<10	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<10	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	7.28	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<20	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	28.3	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<10	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	33.2	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559144:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2153085/2021**
Laboratory Number: **20559145**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534055 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **10** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.02	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.82	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	15.9	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	8.41	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	18.7	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.33	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	52	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	2.82	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559145:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2153085/2021**
Laboratory Number: **20559146**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534056 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **11** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	58.1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	10.7	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	19.8	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	<39.5	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	53	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	29	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	17.6	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	5.49	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	17.6	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	33.3	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	30.4	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559146:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559147**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534057 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **12** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	24.2	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	27.9	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	26.6	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	28.5	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	3.74	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	57.7	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	3.36	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	41.1	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	75.6	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	10.1	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	32.4	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFFPA (2706-90-3)	32.2	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	54.5	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559147:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559148**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534058 SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **13** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	23.1	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	11.4	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	8.56	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	4.16	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	16.5	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	<5	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559148:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559149**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534059 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **11 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **14** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<1.3	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	44.1	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	<2	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	<2	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	1.6	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	<2	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	<2	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559149:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559150**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534060 FL**
Sample Matrix: **Surface Water**
Sample Date/Time: **15 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **15** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	70.8	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	11.2	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	14.9	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	30.9	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	1.55	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	36.4	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	33.8	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	27	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	4	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	15.7	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	40.4	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	26.1	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559150:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559151**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534061 Cuckoo**
Sample Matrix: **Surface Water**
Sample Date/Time: **15 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **16** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	12.9	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	13.4	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	13.3	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	3	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFFPA (2706-90-3)	20.8	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559151:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559152**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534062 Santry**
Sample Matrix: **Surface Water**
Sample Date/Time: **15 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **17** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	2.99	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	1.25	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	<0.65	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	2.05	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559152:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559153**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534063 Kealy's**
Sample Matrix: **Surface Water**
Sample Date/Time: **15 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **18** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	8.05	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	6.51	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	10.8	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	33	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	16.6	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	28.8	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	8.71	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	7.49	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	74.4	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	17.3	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559153:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559154**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534064 Mayne**
Sample Matrix: **Surface Water**
Sample Date/Time: **15 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **19** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	40.5	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	7.89	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	8.32	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	13.9	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	14.1	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	17	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	6.9	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	1.97	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	6.41	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	20.2	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	16.2	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559154:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559155**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534065 GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **09 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **20** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	1.07	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.6	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	12.9	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	1.24	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	2.65	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	1.54	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.04	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	1.72	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	2.67	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559155:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559156**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534066 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **09 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **21** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	14.6	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	1.97	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	4.26	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	0.987	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	11.5	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559156:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559157**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534721 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **22** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	1.79	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.59	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	19.6	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	14.7	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	10.1	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.87	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	15.5	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	3.38	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559157:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559158**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534722 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **23** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	2.3	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.45	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	14	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	8.66	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	14.7	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	2.42	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.17	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFFPA (2706-90-3)	32.8	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	3.75	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559158:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559159**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534723 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **24** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.06	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	2.27	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.01	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	14.6	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	10.2	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	21.9	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	1.82	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	1.21	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	3.06	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	43.4	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	6.28	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559159:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559160**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534724 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **25** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	1.41	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	0.941	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	22.1	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	26.5	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	24.4	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	2.08	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.09	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	33.7	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	2.35	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559160:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559161**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534725 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **26** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	11.9	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	2.1	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	5.13	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	10.4	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	9.26	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	8.82	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	1.22	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	1.44	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	3.2	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	11.7	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	7.22	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559161:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559162**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534726 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **27** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.97	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.57	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	13.1	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	5.08	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	3.63	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	1.19	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	1.57	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	3.3	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	1.57	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559162:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559163**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534727 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **28** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	182	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	8.11	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	23	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	<50	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	55.6	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	40.7	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	6.69	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	2.98	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	15.8	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFFPA (2706-90-3)	37.6	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	31.1	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559163:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559164**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534728 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **29** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	2.61	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.99	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	15.3	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	10	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	16	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	3.01	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.56	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	25.7	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	4.61	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559164:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559165**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534729 SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **30** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	25.9	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	<10	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	19.4	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	28.3	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<10	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<10	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<10	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	10.9	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<10	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	14.8	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<10	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<10	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	<6.5	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<20	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	27.9	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<10	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	19.4	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559165:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559166**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534730 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **31** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.12	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	1.42	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.55	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	18	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	11.1	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	18.1	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	1.64	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	1.1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	3	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	40.1	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	3.97	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559166:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559167**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534731 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **32** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	61.1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	7.69	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	20	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	<42	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	58.4	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	31.8	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	18.3	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	6.27	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	22.1	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	37	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	27.7	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559167:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559168**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534732 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **33** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	25	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	29.4	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	26.9	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	27.7	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	3.67	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	52.9	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	3.25	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	39.9	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	68	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	11.6	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	32.3	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFFPA (2706-90-3)	35.2	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	56.3	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559168:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

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Report Number: **WAK/2153085/2021**
Laboratory Number: **20559169**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534733 SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **34** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<3.25	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	29	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	13	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	8.69	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	3.92	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	19.9	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	<5	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559169:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2153085/2021**
Laboratory Number: **20559170**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534734 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **18 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **35** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<2	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	<2	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.57	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	10.4	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<2	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<2	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<2	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	2.41	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<2	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	<2	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<2	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<2	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	2.04	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<4	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	<2.5	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<2	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	<2	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559170:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2153085/2021**
Laboratory Number: **20559171**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534735 GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **16 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **36** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	01/07/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	01/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.09	ng/l	01/07/2021	Y S	SUBCON
PFBA (375-22-4)	5.93	ng/l	01/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	01/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHpA (375-85-9)	1.44	ng/l	01/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	01/07/2021	Y S	SUBCON
PFHxA (307-24-4)	1.08	ng/l	01/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	01/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	01/07/2021	Y S	SUBCON
PFOA (335-67-1)	1.23	ng/l	01/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	01/07/2021	Y S	SUBCON
PFPA (2706-90-3)	1.22	ng/l	01/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	01/07/2021	Y S	SUBCON
Total PFOS	1.09	ng/l	01/07/2021	Y S	SUBCON

Analyst Comments for 20559171:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **WAK/2153085/2021**
Laboratory Number: **20559172**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel Raw**
Sample Description: **4534736 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **16 June 2021**
Sample Received: **22 June 2021**
Analysis Complete: **02 July 2021**

Issue **1**
Sample **37** of **37**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	30/06/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	30/06/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	30/06/2021	Y S	SUBCON
PFBA (375-22-4)	14.1	ng/l	30/06/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	30/06/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHpA (375-85-9)	1.68	ng/l	30/06/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	30/06/2021	Y S	SUBCON
PFHxA (307-24-4)	4.01	ng/l	30/06/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	30/06/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	30/06/2021	Y S	SUBCON
PFOA (335-67-1)	1	ng/l	30/06/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	30/06/2021	Y S	SUBCON
PFPA (2706-90-3)	11	ng/l	30/06/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	30/06/2021	Y S	SUBCON
Total PFOS	<1	ng/l	30/06/2021	Y S	SUBCON

Analyst Comments for 20559172:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 74 of 78

Signed:



Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**



ANALYST COMMENTS FOR REPORT WAK/2153085/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **02 July 2021**

Sample No	Analysis Comments
20559136	
20559137	
20559138	
20559139	
20559140	
20559141	
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20559165	
20559166	
20559167	
20559168	
20559169	
20559170	
20559171	
20559172	

Signed:

Name: **C. Ulph**

Date: **02 July 2021**

Title: **Micro/Crypto/Logistics Manager**




DETERMINAND COMMENTS FOR REPORT WAK/2153085/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 02 July 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: C. Ulph	Date: 02 July 2021
	Title: Micro/Crypto/Logistics Manager	

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ALS Environmental Ltd

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www.alsenvironmental.co.uk

Ms Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel South Tipperary

05 July 2021

Test Report: COV/2156894/2021

Dear Ms Thomas

Analysis of your sample(s) received on 29 June 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name:

D. Lewis

Title:

Technical Inorganic Manager



EMS 675527

OHS 542058

Report Summary

ANALYSED BY

Ms Rosemary Thomas
ALS Life Sciences (Ireland)
Carrigeen Business Park
Clonmel
South Tipperary



Date of Issue: **05 July 2021**

Report Number: **COV/2156894/2021**

Issue **1**

This issue replaces
all previous issues

Job Description: General Analysis

Job Location: RBFC-765280621

Number of Samples
included in this report **18**

Job Received: **29 June 2021**

Number of Test Results
included in this report **306**

Analysis Commenced: **05 July 2021**

Signed:

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Page 1 of 40

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2156894/2021**
Laboratory Number: **20582544**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547520 P2**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **1** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	1.71	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.94	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	13.3	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	12.6	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	10.2	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	1.02	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.59	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	14.4	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	3.66	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582544:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2156894/2021**
Laboratory Number: **20582545**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547521 P3**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **2** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	2.27	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.39	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	13.3	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	5.59	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	13	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	2.67	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.23	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	30.4	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	3.67	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582545:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2156894/2021**
Laboratory Number: **20582546**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547522 P4**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **3** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	3.64	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	1.54	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.45	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	14.9	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	8.78	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	15.4	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	1.54	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	1.2	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	3.54	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	26	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	4	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582546:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2156894/2021**
Laboratory Number: **20582547**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547523 P7**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **4** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	1.48	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	1.84	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	16.5	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	22.1	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	18.3	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	1.83	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	1.14	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.92	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	28.2	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	3.32	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582547:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2156894/2021**
Laboratory Number: **20582548**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547524 P8**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **5** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	6.73	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	1.63	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.2	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	6.23	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	9.57	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	7.39	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	1.17	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	1.67	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	3.43	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	7.39	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	5.83	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582548:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Title: **Technical Inorganic Manager**

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Report Number: **COV/2156894/2021**
Laboratory Number: **20582549**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547525 R1**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **6** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.46	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.04	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	14.2	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	4.22	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	4.18	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.59	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	3.63	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	2.04	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582549:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Title: **Technical Inorganic Manager**

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Report Number: **COV/2156894/2021**
Laboratory Number: **20582550**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547526 R2**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **7** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	151	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	6.16	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	19.7	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	22.1	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	30.3	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	26.4	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	5.06	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	3.03	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	8.43	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	40.7	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	25.9	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582550:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2156894/2021**
Laboratory Number: **20582551**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547527 SWML 2**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **8** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	4.55	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	13.3	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	7.25	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	13	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	<3.25	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	25	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	<5	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582551:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

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Report Number: **COV/2156894/2021**
Laboratory Number: **20582552**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547528 SWML 3**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **9** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	21.6	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	<10	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	34.2	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	25.3	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<10	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<10	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<10	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	31.6	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<10	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	33.4	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<10	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<10	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	14.4	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<20	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	54.1	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<10	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	34.2	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582552:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

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Date: **05 July 2021**

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Report Number: **COV/2156894/2021**
Laboratory Number: **20582553**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547589 SWML 4**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **10** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	2.84	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	1.26	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	2.01	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	15.4	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	10.2	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	14.5	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	1.41	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.89	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	23.7	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	3.28	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582553:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),


F = Data supplied by customer.

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Report Number: **COV/2156894/2021**
Laboratory Number: **20582554**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547530 SWML 5A**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **11** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	60.9	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	12.5	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	19.2	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	28.4	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	25.5	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	28	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	17.6	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	5.07	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	14.8	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	29.8	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	31.7	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582554:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

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Report Number: **COV/2156894/2021**
Laboratory Number: **20582555**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547531 SWML 5B**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **12** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	41	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	29	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	30.9	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	58.7	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	4.55	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	49.4	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	2.98	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	59.7	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	54.4	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	9.51	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	33.2	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	28.1	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	59.9	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582555:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

ALS Environmental Ltd

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Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2156894/2021**
Laboratory Number: **20582556**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547532 SWML 7**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **13** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<5	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	<5	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	6.84	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	<20	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<5	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<5	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<5	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	22	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<5	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	12.4	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<5	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<5	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	9.21	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<10	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	13.9	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<5	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	6.84	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582556:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2156894/2021**
Laboratory Number: **20582557**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547533 SWML 7B**
Sample Matrix: **Surface Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **14** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	1.25	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	1.65	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	3.35	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	<11.5	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	5.13	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	4.51	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	3.16	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	6.55	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	5.01	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582557:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 28 of 40

Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

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Report Number: **COV/2156894/2021**
Laboratory Number: **20582558**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547534 GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **15** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	11.3	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	1.77	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	3.41	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	0.772	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	8.64	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582558:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2156894/2021**
Laboratory Number: **20582559**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547535 GW4**
Sample Matrix: **Ground Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **16** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	10.7	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	1.66	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	3.33	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	0.736	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	7.97	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582559:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2156894/2021**
Laboratory Number: **20582560**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547536 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **17** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	11.3	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	1.68	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	3.38	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	0.693	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	8.46	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582560:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**

Certificate of Analysis

ANALYSED BY



Report Number: **COV/2156894/2021**
Laboratory Number: **20582561**
Sample Source: **ALS Life Sciences (Ireland)**
Sample Point Description: **ALS Clonmel**
Sample Description: **4547537 GW5**
Sample Matrix: **Ground Water**
Sample Date/Time: **24 June 2021**
Sample Received: **29 June 2021**
Analysis Complete: **05 July 2021**

Issue **1**
Sample **18** of **18**

Test Description	Result	Units	Analysis Date	Accreditation	Method
6:2PTS (27619-97-2)	<1	ng/l	05/07/2021	Y S	SUBCON
Branched PFOS	<1	ng/l	05/07/2021	Y S	SUBCON
Linear PFOS(1763-23-1)	<0.65	ng/l	05/07/2021	Y S	SUBCON
PFBA (375-22-4)	12.1	ng/l	05/07/2021	Y S	SUBCON
PFBS (375-73-5)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDA (335-76-2)	<1	ng/l	05/07/2021	Y S	SUBCON
PFDoA (307-55-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHpA (375-85-9)	1.93	ng/l	05/07/2021	Y S	SUBCON
PFHpS (375-92-8)	<1	ng/l	05/07/2021	Y S	SUBCON
PFHxA (307-24-4)	3.51	ng/l	05/07/2021	Y S	SUBCON
PFHxS (355-46-4)	<1	ng/l	05/07/2021	Y S	SUBCON
PFNA (375-95-1)	<1	ng/l	05/07/2021	Y S	SUBCON
PFOA (335-67-1)	2.16	ng/l	05/07/2021	Y S	SUBCON
PFOSA (754-91-6)	<2	ng/l	05/07/2021	Y S	SUBCON
PFPA (2706-90-3)	8.92	ng/l	05/07/2021	Y S	SUBCON
PFUnA (2058-94-8)	<1	ng/l	05/07/2021	Y S	SUBCON
Total PFOS	<1	ng/l	05/07/2021	Y S	SUBCON

Analyst Comments for 20582561:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG),

F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Page 36 of 40

Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**



ANALYST COMMENTS FOR REPORT COV/2156894/2021

Issue 1

This issue replaces all previous issues

Date of Issue: **05 July 2021**

Sample No	Analysis Comments
20582544	
20582545	
20582546	
20582547	
20582548	
20582549	
20582550	
20582551	
20582552	
20582553	
20582554	
20582555	
20582556	
20582557	
20582558	
20582559	
20582560	
20582561	

Signed: 

Name: **D. Lewis**

Date: **05 July 2021**

Title: **Technical Inorganic Manager**




DETERMINAND COMMENTS FOR REPORT COV/2156894/2021

ISSUE 1

This issue replaces
all previous issues

Date of Issue: 05 July 2021

Sample No	Description	Determinand	Comments

Signed: 	Name: D. Lewis	Date: 05 July 2021
	Title: Technical Inorganic Manager	

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Hawarden
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Tel: (01244) 528700

Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Fehily Timoney
3rd Floor
North Park Offices
North Park Business Park
North Road
Dublin
Dublin 11

Attention: Daniel Hayden

CERTIFICATE OF ANALYSIS

Date of report Generation: 25 February 2020
Customer: Fehily Timoney
Sample Delivery Group (SDG): 200213-68
Your Reference: P2214 Dublin Airport Remediation
Location: Dublin Airport
Report No: 542881

We received 5 samples on Thursday February 13, 2020 and 5 of these samples were scheduled for analysis which was completed on Tuesday February 25, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 200213-68	Client Reference: P2214 Dublin Airport Remed	Report Number: 542881
Location: Dublin Airport	Order Number: Z1953	Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21678458	BH9		0.00 - 0.00	11/02/2020
21678454	BHX		0.00 - 0.00	11/02/2020
21678456	BHY		0.00 - 0.00	11/02/2020
21678460	SWML2		0.00 - 0.00	11/02/2020
21678464	SWML3		0.00 - 0.00	11/02/2020

Maximum Sample/Coolbox Temperature (°C) :

6.8

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 200213-68	Client Reference: P2214 Dublin Airport Remed	Report Number: 542881
Location: Dublin Airport	Order Number: Z1953	Superseded Report:

Results Legend

- X Test
- N No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

Lab Sample No(s)	21678458	21678454	21678456	21678460	21678464
Customer Sample Reference	BH9	BHX	BHY	SWML2	SWML3
AGS Reference					
Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Container	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)
Sample Type	GW	GW	GW	SW	SW
PFAS Liquids	All	NDPs: 0 Tests: 5			
		X	X	X	X



CERTIFICATE OF ANALYSIS

Validated

SDG:	200213-68	Client Reference:	P2214 Dublin Airport Remediation	Report Number:	542881
Location:	Dublin Airport	Order Number:	Z1953	Superseded Report:	

#	Customer Sample Ref.	BH9	BHX	BHY	SWML2	SWML3	
<div style="font-size: small;"> Results Legend # ISO17025 accredited. M mCERTS accredited. sq Aqueous / settled sample. dis.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery. (F) Trigger breach confirmed. 1-3*# Sample deviation (see appendix) </div>							
	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Ground Water (GW) 11/02/2020	0.00 - 0.00 Ground Water (GW) 11/02/2020	0.00 - 0.00 Ground Water (GW) 11/02/2020	0.00 - 0.00 Surface Water (SW) 11/02/2020	0.00 - 0.00 Surface Water (SW) 11/02/2020	
		13/02/2020 200213-68 21678458	13/02/2020 200213-68 21678454	13/02/2020 200213-68 21678456	13/02/2020 200213-68 21678460	13/02/2020 200213-68 21678464	
Component	LOD/Units	Method					
PFBA (357-22-4) Perfluoro-n-butanolic acid	<2 ng/l	TM337	<2 #	<10 #	<10 #	18.2 #	22.8 #
PFPA (2706-90-3) Perfluoro-n-pentanoic acid	<1 ng/l	TM337	<1 #	<5 #	<5 #	11.3 #	37.8 #
PFHxA (307-24-4) Perfluoro-n-hexanoic acid	<1 ng/l	TM337	<1 #	<5 #	<5 #	9.1 #	27.8 #
PFBS (375-73-5) Perfluoro-1-butanedisulfonate	<1 ng/l	TM337	<1 #	<5 #	<5 #	<1 #	1.26 #
PFHpA (375-85-9) Perfluoro-n-heptanoic acid	<1 ng/l	TM337	<1 #	<5 #	<5 #	6.53 #	10.2 #
6:2PTS (27619-97-2) Perfluoro-octane sulfonate 6:2	<1 ng/l	TM337	<1 #	<5 #	<5 #	2.22 #	85.4 #
PFOA (335-67-1) Perfluoro-n-octanoic acid	<0.65 ng/l	TM337	<0.65 #	<3.25 #	<3.25 #	1.77 #	5.47 #
PFHxS (355-46-4) Perfluoro-1-hexanesulfonate	<1 ng/l	TM337	<1 #	<5 #	<5 #	1.39 #	4.57 #
PFNA (375-95-1) Perfluoro-n-nonanoic acid	<1 ng/l	TM337	<1 #	<5 #	<5 #	<1 #	1.7 #
PFHpS (375-92-8) Perfluoro-1-heptanesulfonate	<1 ng/l	TM337	<1 #	<5 #	<5 #	<1 #	<1 #
PFDA (335-76-2) Perfluoro-n-decanoic acid	<1 ng/l	TM337	<1 #	<5 #	<5 #	<1 #	<1 #
Linear PFOS(1763-23-1) Perfluoro-1-octanesulfonate	<0.65 ng/l	TM337	<0.65 #	<3.25 #	<3.25 #	1.08 #	12.7 #
Branched PFOS	<1 ng/l	TM337	<1 #	<5 #	<5 #	<1 #	6.4 #
PFUnA (2058-94-8) Perfluoro-n-undecanoic acid	<1 ng/l	TM337	<1 #	<5 #	<5 #	<1 #	<1 #
PFDoA (307-55-1) Perfluoro-n-dodecanoic acid	<1 ng/l	TM337	<1 #	<5 #	<5 #	<1 #	<1 #
PFOSA (754-91-6) Perfluoro-octanesulfonamide	<2 ng/l	TM337	<2 #	<10 #	<10 #	<2 #	<2 #
PFDS (335-73-3) Perfluoro-1-decanesulfonate	<1 ng/l	TM337	<1 #	<5 #	<5 #	<1 #	<1 #
PFPeS (2706-91-4) Perfluoro-1-pentanesulfonate	<1 ng/l	TM337	<1 #	<5 #	<5 #	<1 #	<1 #
Total PFOS	<1 ng/l	TM337	<1 #	<5 #	<5 #	1.08 #	19.1 #



CERTIFICATE OF ANALYSIS

Validated

SDG: 200213-68 **Client Reference:** P2214 Dublin Airport Remediation **Report Number:** 542881
Location: Dublin Airport **Order Number:** Z1953 **Superseded Report:**

Table of Results - Appendix

Method No	Reference	Description
TM337	PFAS In Clean Water Matrices	Analysis of perfluoroalkylsulfonates and perfluorocarboxylic acids in clean water matrices

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

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 Location: Dublin Airport Order Number: Z1953 Superseded Report:

Test Completion Dates

Lab Sample No(s)	21678458	21678454	21678456	21678460	21678464
Customer Sample Ref.	BH9	BHX	BHY	SWML2	SWML3
AGS Ref.					
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water	Surface Water	Surface Water
PFAS Liquids	24-Feb-2020	25-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020



CERTIFICATE OF ANALYSIS

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Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107)*.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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