



SNC
Environment

**Scariff Civic Amenity Centre - Independent Closure Audit
Report for Waste Licence W0150-01**

A handwritten signature in blue ink that reads "John Rea".

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The findings, conclusions and recommendations in this report (i) have been developed in a manner consistent with the level of skill normally exercised by professionals currently practicing under similar conditions in the area, and (ii) reflect SNC's best judgment based on information available at the time of preparation of this report. The findings and conclusions contained in this report are valid only as of the date of this report and may be based, in part, upon information provided by others. If any of the information is inaccurate, new information is discovered or project parameters change, modifications to this report may be necessary.

This report must be read as a whole, as sections taken out of context may be misleading. If discrepancies occur between the preliminary (draft) and final version of this report, it is the final version that takes precedence. Nothing in this report is intended to constitute or provide a legal opinion.

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1.0 INTRODUCTION

Clare County Council was granted a Waste licence W0150-01 by the Environmental Protection Agency (EPA) on the 10th of May 2002. Under Schedule 1 of the Waste licence the EPA for the operation of the Scariff Civic Amenity Site in accordance with the third and fourth schedule of the Waste Management Act 1996 for the following activities:

Third Schedule

- **Class 12** -Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule
- **Class 13** -Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, temporary storage, pending collection, on the premises where the waste concerned was produced.

Fourth Schedule

- **Class 2** - Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes):
- **Class 3** - Recycling or reclamation of metals and metal compounds:
- **Class 4** - Recycling or reclamation of other inorganic materials:
- **Class 13** - Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced:

This Scariff Civic Amenity Centre's annual waste tonnage intake has decreased below the waste licencing criteria of 1,000 tonnes per annum and Clare County Council wish to surrender their Waste Licence and operate under a Certificate of Registration. As part of the licence surrender process Clare County Council completed and submitted an Application Form for the Surrender of a Licence in August 2015 and also submitted a proposed scoping document for the Independent Closure Audit (ICA) for the site which was approved by the EPA in November 2015. The ICA site visits were completed by SNC Environment on December 8th 2015 and January 19th 2016 and this document is based on the scoping document submitted to the EPA with the Licence Surrender Application submitted to the EPA in August 2015. Confirmatory site sampling was completed in December 2015 and January 2016 during the site visits.

1.1 Limitations

This assessment has been prepared based on a site walkover, publically available data, and previous investigation reports (provided by Scariff Civic Amenity Centre & Clare County Council) with only limited soil, surface water and waste water sampling completed. This audit does not include any intrusive groundwork or verification of third party data.

2.0 SITE DESCRIPTION

Scariff Civic Amenity Centre is located at Fossa Beg, Feakle Road on the western edge of Scariff in County Clare. The centre comprises a waste recovery centre and transfer facility for non-hazardous mixed municipal waste, recyclables and limited household hazardous waste. The area of land comprising the centre is 0.535 hectares.

The facilities on site comprise the following:

- Waste transfer station comprising a vehicle ramp, covered loading/deposit area, steel hopper, 30m³ steel container and electrically operated waste compactor.
- Waste containers for the recovery of materials.
- Chemstore for battery and waste oil storage

The site is fully enclosed with a high security fence and entrance gate for vehicle access. The facility yard used for waste transfer & recovery facilities is paved with concrete overlay and a drainage system collects and directs storm water runoff from the site. To the east of the yard is a wooded area where the site fould percolation area is located. The site water drainage system is split into two areas;

- A road gully situated in the immediate vicinity of the site compactor unit drains surface water from the area around the compactor to the foul water/septic system, see Photo 71 in Attachment 1 and Drawing No. 1 in Attachment 2.
- The upper and lower yard areas are connected drained to the site surface water drainage system that ultimately discharges to the Cappaghbaun River to the south of the site at SW1, see Drawing No. 1 in Attachment 2.

Other infrastructure on site comprises a small office building with toilet facilities. Waste water from the site office is directed to the septic tank and then to the percolation area located in the planted area of the site to the east of the yard, see Drawing No. 1 in Attachment 2.

2.1 Site Operations

The principal waste activity of the Transfer Station is the compaction of solid waste into 30 m³ closed containers for subsequent disposal to landfill in accordance with Class 12 of the Third Schedule of the Waste Management Act, 1996. Other waste activity is the storage of non-recoverable waste received at the facility, prior to disposal at an appropriate facility in accordance with Class 13 of the Third Schedule.

Waste recovery activities include recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes) in accordance with Class 2 of the Fourth Schedule, recycling or reclamation of metals and metal compounds in accordance with Class

3 of the Fourth Schedule, and recycling or reclamation of other inorganic materials in accordance with Class 4 of the Fourth Schedule. This covers the acceptance of waste oils, cooking oils, beverage cans, white goods, other metals, and glass at the facility.

Class 13 of the Fourth Schedule allows for the storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced. This activity is limited to the storage of waste types authorised by the licence at the facility prior to recovery at an alternative appropriate facility.

The quantity and nature of waste collected in 2014 is provided in Table 2-A below.

Table 2-A - Waste Description and Tonnages 2014

Material Type	EWC Code	Tonnage
Domestic waste	20 00 00,20 03 01	307
Metals for recycling	20 01 40	29.2
Aluminium Cans*	15 01 04	1.42
Glass for recycling*	15 01 07	35.78
Plastic bottles*	15 01 02	34.18
Steel cans	15 01 04	12
Batteries	16 06 04	0.8
Lead Acid Batteries	16 06 01	2.78
Newspapers	20 01 01	41.9
Waste Engine Oil	13 02 08	1.89
Waste Oil Filters	16 01 07	1.17
Cardboard	15 01 01	29.9
Tetrapak	15 01 05	1.55
Textiles	20 01 11	1.81
WEEE	20 01 23, 35,36	58.15
Timber/Wood	20 01 38	28.5
TOTAL		588.03

2.2 Site Setting

2.2.1 Geology

The Foss Beg site bedrock is mostly composed of Dinantian Lower Impure Limestone (DLIL). The topsoil comprises of a marl-type alluvium and the subsoil is mostly sandstone till (Devonian). This information was gathered from the Geological Survey of Ireland online mapping application. (i.e. <http://spatial.dcenr.gov.ie/GeologicalSurvey/Groundwater/index.html>), see Drawing 2.1 in Attachment 2.

2.2.2 Hydrogeology

In Ireland, aquifer potential is divided into three broad categories, including: Regionally Important, Locally Important, and Poor. The GSI identifies the site as a locally important bedrock aquifer which is moderately productive only in local zones. The GSI aquifer classification map for the area beneath and adjacent to the Scariff facility is provided on Drawing 2.2 in Attachment 2. Locally important bedrock aquifers are characterised by local zones of moderate productivity (transmissivities greater than 50 m²/d are possible), and local surface discharge with high drainage density but low base flows. Karst features are uncommon within locally important aquifers. No karst features have been mapped for the area. In locally important aquifers the horizontal flow system is considered to be limited. Accordingly, horizontal pathways to pollutant migration are expected to be limited at the site.

The GSI classifies groundwater vulnerability into four general categories: Extreme, High, Moderate, and Low. The classification system is further divided into bedrock and sand/gravel aquifers. This classification system is based on the permeability and thickness of the soil overlying the aquifer. In principle, thicker layers of fine grained soils overlying an aquifer would generally provide more protection to the aquifer and such a setting would tend towards a low vulnerability rating. Outcropping bedrock aquifers would tend towards an extreme vulnerability rating.

The GSI identifies the aquifer located at the site as a moderately vulnerable aquifer, implying that surface pollutants would move relatively slowly and in relatively low quantities from the ground surface into the underlying aquifer. Groundwater flow is expected to flow in an easterly direction towards the Cappaghbaun River. A copy of the GSI aquifer vulnerability map is provided on Drawing 2.3 in Attachment 2.

Scariff do not use groundwater as a water supply source and there are no reported groundwater users in the immediate area.

3.0 INDEPENDENT CLOSURE AUDIT

Scariff Civic Amenity Centre is currently receiving an annual waste tonnage below a 1,000 tonnes and is showing a decreasing trend. Therefore, following EPA guidelines on waste licensing the Scariff site was deemed to be below the licensing threshold. It is Clare County Councils intention to operate the site under a certificate of registration regulated by the EPA. As part of the licence surrender process Scariff Civic Amenity Centre submitted a scoping document for the independent closure audit (ICA), approved by the EPA in August 2015. The independent closure audit was completed by SNC Environment based in Kilkenny. The audit was completed to assess the following criteria:

- whether environmental impacts will arise in future based on past operations and incidents on site;
- Storage of raw materials and waste on site is appropriate and will not cause environmental impact;
- If required - decommissioning works are completed to best practice and all contaminated plant and equipment is appropriately decontaminated and or recycled/disposed of; and
- Record and report any areas that may require further investigation or clarification to allow for a clear understanding of site quality to be determined and report the results if any additional sampling or monitoring completed during the site audit.

3.1 Independent Closure Audit Methodology

The proposed ICA included a review and inspection of environmental aspects associated with historical operations at the Scariff site and potential environmental impacts associated with those historical operations. The main areas covered by the ICA are outlined below.

- **Document Review** - A review of relevant site information including; licence application, site environmental monitoring data to end of 2014, volume of process inputs and waste management, AERs, site EMP and EPA correspondence.
- **Staff Interview** - An interview was completed with Scariff Civic Amenity Centre staff that have limited knowledge of the sites waste licence and the site process history.
- **Building Materials Assessment** – An assessment and documentation of the site building including building size, description, construction materials, age and use. During the site walkover an observation of insulation materials, flooring, roof/ceiling materials, paints and building fixtures that may contain hazardous materials was completed.
- **Plant and Equipment Decontamination** – The examination of on-site plant and equipment such as hoppers and compactors to check if they are operating and being maintained correctly. Also

details of any decontamination process completed and disposal of decontamination wash and/or the equipment. Because it is proposed that the site will continue to operate under a Certificate of Registration there is no perceived need for plant decommissioning or decontamination.

- **Bund storage** – to observe the banded chemstore and check that all waste oils are stored in the banded area and the presence of any leaks or visible faults etc.
- **Surface Water Runoff** – identification of surface water runoff drains and identify surface water flows direction. Also, identification of whether surface water drains are close to potential contaminant run-off sources. To identify the location of the septic tank system and associated drainage and oil interceptor and silt trap. A review of sampling and analysis results to assess storm water quality from the site and identify if any potential impacts to storm water exist or are likely to exist post site closure;
- **Waste Management** – Assessment of waste arriving on site such as tonnage, type and how it was handled on site
- **Soil & Groundwater** – Assessment of potential soil and groundwater impacts, if any, associated with operations at the facility including soil sampling and analysis at areas of potential concern
- **Revised Sampling Programme** – based on the reduced operations on site, sampling results during the site audit and installation of surface water control measures.

3.2 Site Document Review

As part of the site closure audit process a review of documentation related to the environmental compliance of the Scariff site with the site waste licence was completed. As part of the process the following documents were reviewed;

- Surface water quality laboratory result
- Inspectors Report on Application for a waste Licence from Scariff Civic Amenity Centre, Fossa Beg, Feakle Road, Scariff, Co. Clare. Licence Register No. W0150-01, 2002.
- Annual Environmental Reports, 2008 -2014
- EPA Inspectors Reports
- Residual Management Plan

A review of site monitoring data was completed to assess the potential historic and existing environmental impacts from the Scariff facility. The process involved the review of annual environmental reports (AER) submitted by Scariff between 2008 and 2014. The AER documents outlined the waste tonnages handled and the air (dust deposition until 2012), and surface water monitoring results for each year and the level of compliance of the site with the EPA licence limits. An outline of the results observed in the site AERs is provided below.

3.2.1 Waste Management

A review of the facility AERs between 2008 and 2014 indicated that Scariff has received and managed hazardous and non-hazardous waste as provided in Schedule 1 of the waste licence. Details of the wastes and volumes produced are outlined in Table 3-A.

Table 3.6: Waste Management Details for Scariff Facility 2008 – 2014

Year	Waste Description	Tonnage	total
2014	Hazardous	64	558
	non hazardous	494	
2013	Hazardous	7	471
	non hazardous	464	
2012	Hazardous	61.6	1001.85
	non hazardous	940.25	
2011	Hazardous	63.77	1003.15
	non hazardous	939.38	
2010	Hazardous	84.16	1142.16
	non hazardous	1058	
2009	Hazardous	22.16	1288.56
	non hazardous	1266.4	
2008	Hazardous	14.68	1457.12
	non hazardous	1442.44	

The largest component of non-hazardous waste on site is domestic waste and mixed municipal waste. This was collected and disposed of by a permitted contractor (Clean Ireland Recycling – Licence No. W0253-01). All waste generated on site is transported off site for recovery or disposal through a permitted or licensed contractor which can be seen in the AER. As outlined in Table 3-A, the volume of waste handled on site has significantly reduced since 2012.

3.2.2 Air Emissions/Ambient Air Quality

There are no emissions to atmosphere on site. However annual monitoring of ambient dust concentrations is required under the licence. Results from monitoring are only available up to the year ending 2012. The results are outlined in Table 3-B below.

Table 3.B Dust Deposition Results (2008-2012)

Monitoring Period	Dust Deposition mg/m ² /day	Limit
Jan-12	39	350
Feb-12	65	
Jan-11	44	
Feb-12	49	
Jul-10	175	
Aug-10	128	
Apr-09	229	
Sep-09	338	
Jun-08	90.06	
Jul-08	93.75	

The results indicated that the Scariff site has not had a historical issue with dust deposition concentrations as all monitoring events showed concentrations below the ELV of 350 mg/m²/day. However there seems to be an inconsistency in the frequency of monitoring and the dates when some monitoring events were completed and no reference locations were identified in the AERs. The licence states under schedule D that dust deposition sampling should be completed each year once during the period May to September, however there were some sample events completed outside the required sampling period (e.g., all sampling completed in 2012 was completed in January and February).

3.2.3 Surface Water

The surface water drainage system is designed with two main discharge locations. The area surrounding the compactor unit located in the lower yard area is drained to a surface gully which is directed to the foul septic tank system. The design was employed to collect any potential leachate runoff from the compactor and direct it to the septic system instead of the surface water drain, see Drawing No. 01 in Attachment 2.

The only discharge to the surface water drainage system is rainwater/storm water runoff from the paved areas at the upper and lower areas of the site. The surface water runoff from site roads and yard is discharged directly to the adjacent Cappaghbaun River via SW1. This is the only discharge to surface waters from site, there are no process emissions to surface water from the Scariff facility. The gradient of site slopes gently from west to east in the direction of the stream adjacent to the site. Monitoring location SW1 represents storm water discharge to the adjacent River. Monitoring locations SW2 and SW3 are surface water locations on the stream, upstream and downstream respectively of the facility. The results of the historic sampling events can be seen in the Tables 3-C through 3-E below.

Table 3.C: Surface Water Monitoring Results Summary 2008-2014 for SW1

Year	NH ₄ -N	DO	TSS	Chloride	BOD	pH	EC
2014	0.24	84.9	13	46.6	5	7.65	380
2013	0.22	92.6	14	40.2	4	7.87	410
2012	0.164	88.6	12	32.75	5	8.3	450
2011	0.25	94.9	10	52.86	8	7.98	443
2010	0.076	95.8	60	63.95	11	7.95	474
2009 ^[1]	0.13	90.9	2	22.82	3	7.39	125
2008	0.068	85.1	2	11.63	2	6.71	419
Regulatory Limits	0.14*	80*	50**	250**	2.6*	6 – 9*	1000**

[1] in 2009 the DO results appeared to be entered incorrectly e.g., 9.09 instead of 90.9

* Environmental Objectives (Surface Water) Regulations, 2009

** Surface Water Regulations 1989

Table 3-D: Surface Water Monitoring Results Summary 2008-2014 for SW2 - Upstream of Site

Year	NH ₄ -N	DO	TSS	Chloride	BOD	pH	EC
2014	0.39	90.2	2	28.7	2	7.82	285
2013	0.033	89.7	2	22.6	2	7.73	266
2012	0.041	88.1	2	31.04	2	7.62	285
2011	0.035	96.5	2	25.62	2	7.8	398
2010	0.046	96.9	22	22.56	2	7.82	374
2009	0.038	94.2	2	16.25	2	7.44	321
2008	0.026	91.5	3	14.62	2	6.89	239
Regulatory Limits	0.14*	80*	50**	250**	2.6*	6 – 9*	1000**

* Environmental Objectives (Surface Water) Regulations, 2009

** Surface Water Regulations 1989

Table 3-E: Surface Water Monitoring Results Summary 2008-2014 for SW3 – Downstream of Site

Year	NH ₄ -N	DO	TSS	Chloride	BOD	pH	EC
2014	0.05	95.1	2	19.2	3	7.43	236
2013	0.059	94.3	2	18.7	7	7.69	254
2012	0.075	96	2	17.05	7	7.73	281
2011	0.039	97.8	2	22.73	2	7.82	367
2010	0.046	97.6	24	23.98	2	7.87	378
2009	0.021	93.3	2	15.54	2	7.48	321
2008	0.014	91.2	2	14.57	2	6.95	234
Regulatory Limits	0.14*	80*	50**	250**	2.6*	6 – 9*	1000**

* Environmental Objectives (Surface Water) Regulations, 2009

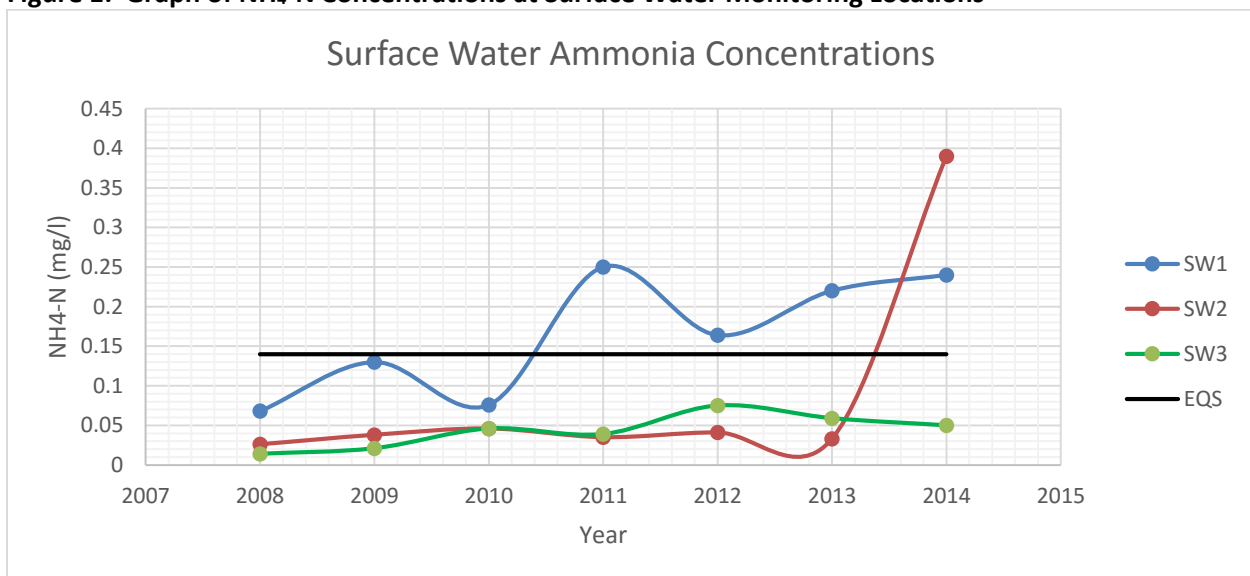
** Surface Water Regulations 1989

The results indicated that there were no issues with the concentrations of dissolved oxygen, suspended solids, chloride, pH and conductivity at the three surface water monitoring locations as the values were mostly less than the Environmental Objectives (Surface Water) Regulations, 2009 limits. One sampling event in 2010 indicated a suspended solid concentration above the guideline limit value of 50 mg/l. However the value was only marginally elevated at 60 mg/l and appeared to be an isolated event.

The results also indicated that concentrations of NH₄-N at SW1 were elevated for sampling completed between 2011 and 2014. During the sampling events 2011 to 2014 the NH₄-N concentration was greater than the Environmental Objectives (Surface Water) Regulations, 2009 value of 0.14mg/l. The concentrations ranged between 0.164 mg/l (2012) and 0.25 mg/l (2011). Surface water samples collected at SW2 (i.e., upstream of site discharge) indicated that all samples, except the sample collected in 2014, contained NH₄-N concentrations less than the Environmental Objectives (Surface Water) Regulations, 2009 value of 0.14mg/l. All samples collected at SW3 (i.e., downstream of site discharge) contained NH₄-N concentrations less than the Environmental Objectives (Surface Water) Regulations, 2009 value of 0.14mg/l.

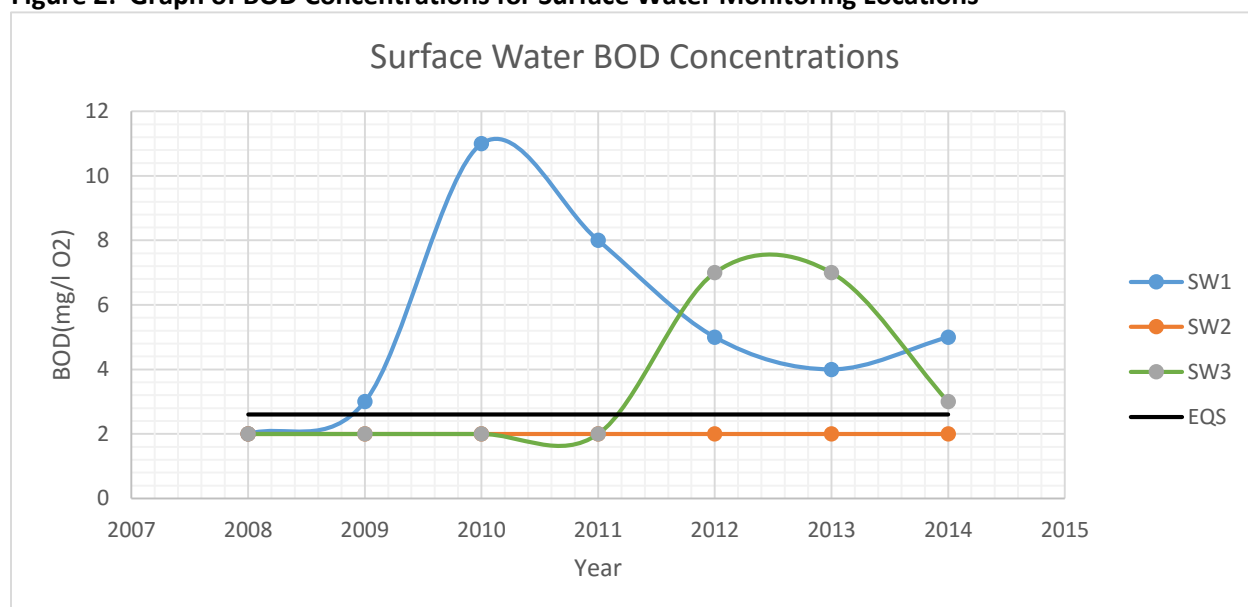
The sample results indicated that although the concentrations of NH₄-N were slightly elevated at the site discharge between 2008 and 2014 it was not having an impact on downstream water quality at SW3 where NH₄-N concentrations were consistently less than the regulatory limit, see Figure 1. The only potential source of NH₄-N from onsite activities would be from the compactor but the site layout design indicates that leachate runoff from the compactor should enter the drain into the septic tank system. SW2 (Upstream) did show an increase in NH₄-N concentration in 2014, this may be due to runoff from other sources upstream of the site.

Figure 1: Graph of NH₄-N Concentrations at Surface Water Monitoring Locations



BOD concentrations greater than the Environmental Objectives (Surface Water) Regulations, 2009 value of 2.6 mg/l were observed at SW1 (2009-2014) and SW2 (2012-2014). The downstream location (SW3) contained concentrations of BOD less than the laboratory method detection limit of 2 mg/l O₂. The BOD concentrations trends from 2008 to 2014 at all surface water sampling locations are outlined on Figure 2 below.

Figure 2: Graph of BOD Concentrations for Surface Water Monitoring Locations



Weekly visual inspection monitoring of surface waters is required under Condition 8 of Waste Licence W0150-01. However these log sheets were not found in the site file.

3.3 Site Walkover

To confirm the information assessed in the document review, a site walkover was completed by SNC on December 8th, 2015 to assess site conditions, environmental quality and verify the findings of the document review. A copy of the site walkover audit form completed on December 8th, 2015 is provided in Attachment 3.

3.3.1 Staff Interviews

As part of the site walkover completed at the Scariff facility on December 8th 2015 a staff member were interviewed that had a very good knowledge of the facility history and the operations completed at the facility. The staff members interviewed were:

- Mrs Carmel Wall – Facility Caretaker

The site walkover was completed by Mr. John Rea on December 8th, 2015. The visit included an initial interview with Mrs Carmel Wall who provided a background and history of the facility as well as information on storage and waste management facilities and operations.

3.3.2 Building Materials Assessment

As part of the site assessment walkover the building size, description, construction materials, age and use were noted. During the site walkover an observation of insulation materials, flooring, roof/ceiling materials, paints and building fixtures that could contain hazardous materials (e.g., light ballasts and electrical transformers) was also completed. The building observations are outlined in Table 3.F below.

Table 3.F: Scariff Building Construction Observations

Materials Assessed	Details
Building Age and Area (m ²)	The site office is the only building on site. The age of the building is 17 years old and has a floor area of approximately 12 m ² .
Building Construction Materials	The office building is constructed by a concrete cavity block wall with a timber frame roof with slate roof tiles
Internal Construction Materials	As outlined above, the building construction consists of concrete walls with a timber frame roof. The floor area is tiled and there is pipework which runs from the toilet to the septic tank.

3.3.3 Building & Equipment Decommission / Decontamination

The surrender of the licence involves the limiting of waste tonnages accepted to less than 1,000 tonnes per anum. The site will continue to operate under a certificate of registration and will not require decommissioning or decontamination of any equipment or buildings.

3.3.4 Waste Management

During the site walk over and closure audit the site was inspected for litter control and cleanliness. The site was generally clean with some windblown paper etc. there was no staining observed under the compactor. A black residue was observed on the concrete floor of the lower yard which appears to be melted bitumen. Photos of the site conditions during the site walkover are provided in Attachment 1.

Waste materials collected on site are transferred and treated, or disposed of, off-site by licensed or permitted contractors. The majority of waste is treated in Ireland with the exception of textiles which is sorted in Ireland and exported abroad.

3.4 Potential Source Pathway Receptor Linkages

The potential pollution linkages at the Scariff site were assessed based on the document review and site walkover. The potential source, pathways, and receptors identified for waters at the Scariff site are outlined in Table 3.G

Table 3.G: Source-Pathway-Receptor Pollution Linkage for Scariff

Source	Pathway	Receptors	Comments
Leachate, fuel or oil leak or spillage to yard surface	Flow into yard drainage system	Cappagabaun River - a tributary of the Graney River	There is no identified oil interceptor or silt trap on site, therefore any spillages/leaks that occur on the yard could enter the surface water drainage system.
Leachate, fuel or oil leak or spillage to yard surface	Lateral Shallow groundwater flow	Surface water	Shallow groundwater discharge from beneath the site to the adjacent River is unlikely. The east and south of the yard is missing some curbing which may allow the migration of some rain/storm water to soils. However, the soil appears to be a clay material which will impede the flow of water.

3.4.1 Soil and Groundwater

There are no direct emissions to groundwater or boreholes at the Scariff Facility. Consequently the Scariff Civic Amenity Centre is not required under the waste licence to carry out groundwater sampling and monitoring. However, as previously mentioned, areas at the east and south of the site is missing curbing which may allow for soil contamination. The potential source, pathways, and receptors identified for soils and groundwater at the Scariff site are outlined in Table 3.H.

Table 3.H: S-P-R Soils and Groundwater Pollution Linkage for Scariff Facility

Source	Pathway	Receptors	Comments
Fuel and Hydraulic / Engine Oils Leachate From compactor	Lateral surface water flow to soils to the east and south.	Soils and Shallow & Deep groundwater	The storage of oil on site is controlled and takes place on containment bunds and a linkage is not present. The facility yard also has a concrete surface so any small equipment leaks can be cleaned immediately and will not migrate to ground. However the east and south of the site is missing curbing which provides a potential pollution linkage for contaminants that may migrate laterally on the lower yard surface and potentially impact soil and groundwater quality.

Source	Pathway	Receptors	Comments
pollution from inadequate septic tank treatment	Vertical groundwater flow	Soils and Shallow & Deep groundwater	Waste water from the toilets and drainage from the compactor area enter the septic tank. There was no documentation to prove the chambers were de-sludged. If the treatment of waste water is ineffective the groundwater and soil in the vicinity of the percolation area to the east may become contaminated as a result.

Based on the potential pollution linkages identified at the site, additional sampling was completed during December 2015 and January 2016 to assess environmental media quality and assess impacts, if any, from historical activities. The results of the additional sampling completed are provided in sections 3.5.3, 3.5.4 and 3.5.5 below.

3.4.2 Storm Water Control

Under section 3.10 of the waste licence the site should have a silt trap and oil separator onsite that meets the Draft European Standard prEN 858. The controls were required to provide mitigation of surface water discharge from the site in the event of an oil leak from vehicles and plant and/or accidental spillages on the yard surface.

The site walkover did not indicate that an oil / water separator exists as part of the Scariff Civic Amenity Site surface water drainage system.

4.0 ADDITIONAL SITE SAMPLING

Based on the potential pollution linkages identified in section 3.4 additional sampling was completed during December 2015 and January 2016 to assess if surface water, waste water and soil quality had been impacted from historical site activities. The results of the additional sampling completed are provided below and the analysis reports are provided in Attachment 4.

4.1 Surface Water Sampling

The main discharge to the surface water drainage system is rainwater runoff from the facility roof and outside paved areas.

Surface water is directed to one central manhole before discharging to the surface water receptor at SW1. As part of the site visit/closure audit surface water samples were collected on December 7th 2015 and January 19th 2016 to assess surface water quality discharge from the site (SW1) and surface water quality upstream and downstream of the site (SW2 and SW3). It should be noted that sampling at SW2 and SW3 could not be completed in December 2015 as the Cappaghabaun River was flooded and the sample for SW1 was collected from a surface water manhole located immediately up gradient from SW1.) The samples collected in December 2015 from the SW1 outlet was submitted for metals and hydrocarbons analysis to assess concentrations in surface water runoff from the site. Samples collected from SW1, SW2 and SW3 in January 2016 were submitted for analysis for parameters required under Schedule D.3 of the site Waste Licence. The results for the sampling completed in December 2015 are presented in Table 4-A and the results for the sampling completed in January 2016 are presented in Table 4-B. All samples were submitted to an accredited laboratory for analysis.

Table 4-A: Surface Water Sample Results at SW1 in December 2015

Parameter	Sample ID	Result (µg/l)	Regulatory Limit (µg/l)	Results in Compliance	
				Yes	No
Arsenic	SW15- SW1-12	<2.5	25*	✓	
Boron		25	2,000**	✓	
Cadmium		<0.5	0.6*	✓	
Chromium		<1.5	32*	✓	
Copper		<7	30*	✓	
Lead		<5	7.2*	✓	
Mercury		<1	0.07*	✓	
Nickel		<2	20*	✓	
Selenium		<3	10	✓	
Zinc		14	100*	✓	
EPH (C ₈ -C ₄₀)		<10	10***	✓	
BOD		<1	2.6*	✓	
COD		<7	40**	✓	

Table 4-B: Surface Water Analysis Results for Samples Collected in January 2016

Parameter	Sample ID	Result (mg/l)	Regulatory Limit (mg/l)	Results in Compliance	
				Yes	No
Chloride	SW16- SW1-01	18.4	250	✓	
Ammoniacal Nitrogen		0.04	0.14*	✓	
BOD		1	2.6*	✓	
Conductivity		539 µS/cm	1,000	✓	
Suspended Solids		<10	50	✓	
pH		7.4	6.5-9.0	✓	
Dissolved Oxygen		109%	80 -120% SAT*	✓	
Temperature		5.8°C	25°C	✓	
Chloride	SW16- SW2-01	13.7	250	✓	
Ammoniacal Nitrogen		0.04	0.14*	✓	
BOD		<1	2.6*	✓	
Conductivity		266 µS/cm	1,000	✓	
Suspended Solids		10	50	✓	
pH		7.6	6.5-9.0	✓	
Dissolved Oxygen		103%	80 -120% SAT*	✓	
Temperature		5.7°C	25°C		
Chloride	SW16- SW3-01	13.8	250	✓	
Ammoniacal Nitrogen		0.04	0.14*	✓	
BOD		<1	2.6*	✓	
Conductivity		273 µS/cm	1,000	✓	
Suspended Solids		<10	50	✓	
pH		7.7	6.5-9.0	✓	
Dissolved Oxygen		113%	80 -120% SAT*	✓	
Temperature		5.7°C	25°C	✓	

* Environmental Objectives (Surface Water) Regulations, 2009

** Surface Water Regulations 1989

***EPA Guideline values

During the site visit in December 2015 it was observed that there were white goods stored in close proximity to the storm water drains. As a result the surface water sample from SW1 were tested for metals and concentrations of all parameters were less than the applicable regulatory limits and guideline values. Additionally the surface water sample was analysed for hydrocarbons, BOD and COD. The results were all less than the surface water regulatory limits and guideline values. The sampling event on December 8th indicated that surface water discharge from the Scariff site was not having a negative impact on surface water receptors.

Surface water sampling was completed at Scariff in January 2016 at surface water locations SW1, SW2 and SW3. All samples were analysed for parameters outlined in Schedule D.3 of the site Waste Licence. The analysis and monitoring results indicated that the concentrations of all regulated parameters in all surface water samples were less than the applicable regulatory limits and/or EPA guideline values for surface water.

The results from the surface water sampling events in December and January indicated that the contaminants of concern in surface water discharged water to Cappaghabaun River contained contaminants of concern less than the applicable surface water regulations and guideline limits and was not negatively impacting the surface water receptor quality.

4.2 Waste Water/Septic Tank

During the site walk over/closure audit the septic tank chambers were located and identified. To examine the effectiveness of the septic tanks treatment a sample was collected from the second chamber in December 2015 and January 2016. Any leachate runoff from the on-site compactor would be directed to a road gully that connects to the septic system. To assess if leachate from the compactor may have impacted water quality in the septic system metals, hydrocarbon and BOD/COD analysis was completed in December 2015. The samples collected from the septic system in January 2016 were analysed for parameters outlined in Schedule C.2 of the Waste Licence to assess compliance with the licence conditions. The results are presented in Tables 4-C and 4-D below.

Table 4-C: Analysis Results for Sample Collected from Septic Chamber in December 2015

Parameter	Sample ID	Result (µg/l)	Regulatory Limit (µg/l)	Results in Compliance	
				Yes	No
Arsenic	SW15- SEPTIC CHAMBER 2-12	<2.5	25*	✓	
Boron		21	2,000**	✓	
Cadmium		<0.5	0.6*	✓	
Chromium		<1.5	32*	✓	
Copper		<7	30*	✓	
Lead		<5	7.2*	✓	
Mercury		<1	0.07*	✓	
Nickel		<2	20*	✓	
Selenium		<3	10	✓	
Zinc		21	100*	✓	
EPH (C ₈ -C ₄₀)		<10	10***	✓	
BOD		<1	2.6*	✓	
COD		<7	40**	✓	

* Environmental Objectives (Surface Water) Regulations, 2009

** Surface Water Regulations 1989

***EPA Guideline values

Table 4.D: Analysis Results for Sample Collected from Septic Chamber in January 2016

Parameter	Sample ID	Result (mg/l)	Regulatory Limit (mg/l)	Results in Compliance	
				Yes	No
Fats Oils and Greases	SW16- SEPTIC CHAMBER-01	<10		✓	
Ammoniacal Nitrogen		0.13	0.14*	✓	
BOD		<1	2.6*	✓	
Electrical Conductivity		226	1,000**	✓	
Suspended Solids		14	50***	✓	
pH		7.1	6.5 – 9.0*	✓	
Temperature		6.1	25°C*	✓	

* Environmental Objectives (Surface Water) Regulations, 2009

** Surface Water Regulations 1989

***EPA Guideline values

The results from the sampling events in December and January indicated that the contaminants of concern in septic discharged water to the percolation area contained contaminants of concern less than the applicable groundwater and surface water regulations and guideline limits.

4.3 Soil & Groundwater

There are no direct emissions to groundwater at the Scariff Facility. Waste water from toilets in the office building are directed to a septic tank and percolation area. The Scariff Civic Amenity Centre is not required under the waste licence to carry out groundwater sampling and monitoring. However, as previously mentioned, sections of curbing on the east and south of the site is missing which may allow for lateral migration of potential contaminants of concern to surrounding soils. Soil samples from various depths were collected to assess the soil quality at areas where curbing was not in place. There are no Irish standards associated with soil quality so the soil monitoring results were compared to the Dutch target values, soil remediation intervention values and indicative levels for serious contamination. The results can be seen in Tables 4-E and 4-F

Table 4-E: Soil Analysis Results for Samples Collected at locations SS01 & SS02 in December 2015

Parameter	Sample ID	Result	Dutch Optimum Limit	Dutch Action Limit	Results in Compliance	
					Yes	No
Arsenic	SS01- (0.1)	<0.5	29	55	✓	
Cadmium		0.4	0.8	12	✓	
Chromium		96.7	100	380	✓	
Copper		8	36	190	✓	
Lead		34	85	530	✓	
Mercury		<0.1	0.3	10	✓	
Nickel		68.3	35	210	✓	
Selenium		1	0.7	100	✓	
Zinc		234	140	720	✓	
Moisture		12.4	n/a	n/a	✓	
EPH (C ₈ -C ₄₀)		1644	50	5000	✓	
Arsenic	SS01-(0.1 -0.3)	2.6	29	55	✓	
Cadmium		0.4	0.8	12	✓	
Chromium		51.3	100	380	✓	
Copper		228	36	190	✓	
Lead		88	85	530	✓	
Mercury		<0.1	0.3	10	✓	
Nickel		25.6	35	210	✓	
Selenium		1	0.7	100	✓	
Zinc		255	140	720	✓	
Moisture		28.2	n/a	n/a	✓	
EPH (C ₈ -C ₄₀)		197	50	5000	✓	
Arsenic	SS02- (0.1)	1.3	29	55	✓	
Cadmium		0.4	0.8	12	✓	
Chromium		67.2	100	380	✓	
Copper		22	36	190	✓	
Lead		118	85	530	✓	
Mercury		0.1	0.3	10	✓	
Nickel		27.1	35	210	✓	
Selenium		1	0.7	100	✓	
Zinc		185	140	720	✓	

Parameter	Sample ID	Result	Dutch Optimum Limit	Dutch Action Limit	Results in Compliance	
					Yes	No
Moisture	SS02- (0.1 - 0.3)	27.2	n/a	n/a	✓	
EPH (C8-C40)		243	50	5000	✓	
Arsenic		2.2	29	55	✓	
Cadmium		0.4	0.8	12	✓	
Chromium		65.3	100	380	✓	
Copper		17	36	190	✓	
Lead		68	85	530	✓	
Mercury		<0.1	0.3	10	✓	
Nickel		22.5	35	210	✓	
Selenium		1	0.7	100	✓	
Zinc		116	140	720	✓	
Moisture		33.3	n/a	n/a	✓	
EPH (C8-C40)		341	50	5000	✓	

Table 4-F: Soil Analysis Results for Samples Collected at Locations SS01 South, SS02 & SS03 East in January 2016

Parameter	Sample ID	Result	Dutch Optimum Limit	Dutch Action Limit	Results in Compliance	
					Yes	No
Arsenic	SS16-SO1-South	4.1	29	55	✓	
Cadmium		0.4	0.8	12	✓	
Chromium		25.2	100	380	✓	
Copper		19	36	190	✓	
Lead		17	85	530	✓	
Mercury		0.3	0.3	10	✓	
Nickel		14.8	35	210	✓	
Selenium		<1	0.7	100	✓	
Zinc		117	140	720	✓	
Moisture		16.4	n/a	n/a	✓	
EPH clean up		49	50	5000	✓	
Arsenic	SS16-SO2-EAST	5.6	29	55	✓	
Cadmium		0.5	0.8	12	✓	
Chromium		165.9	100	380	✓	
Copper		28	36	190	✓	
Lead		95	85	530	✓	

Parameter	Sample ID	Result	Dutch Optimum Limit	Dutch Action Limit	Results in Compliance	
					Yes	No
Mercury		<0.1	0.3	10	✓	
Nickel		32.2	35	210	✓	
Selenium		1	0.7	100	✓	
Zinc		311	140	720	✓	
Moisture		41.2	n/a	n/a	✓	
EPH with clean up		61	50	5000	✓	
Arsenic	SS16-S03-EAST	6.7	29	55	✓	
Cadmium		0.4	0.8	12	✓	
Chromium		182.2	100	380	✓	
Copper		26	36	190	✓	
Lead		104	85	530	✓	
Mercury		<0.1	0.3	10	✓	
Nickel		30.3	35	210	✓	
Selenium		<1	0.7	100	✓	
Zinc		211	140	720	✓	
Moisture		24.3	n/a	n/a	✓	
EPH with clean up		57	50	5000	✓	

The results indicated that all metals and hydrocarbon concentrations in the surface soil sample collected south of the missing curbing on the southern perimeter of the yard (SS16-S01-South) were less than the Dutch Optimum Limits.

The results indicated that all metals concentrations in the surface soil sample collected east of the missing curbing on the eastern perimeter of the yard in December 2015 and January 2016 were all significantly less than the Dutch Action limits, with some metals concentrations (i.e., arsenic, cadmium, copper, mercury and nickel) also less than the Dutch Optimum Limits.

Soil samples collected in December 2015 from the wooded area immediately to the east of the missing curbing indicated extractable petroleum hydrocarbon (EPH) concentrations (i.e., 1,644 mg/kg in SS-01 and 341 mg/kg in SS-02) greater than the Dutch Optimum Limit but less than the Dutch Action Limit. To assess if the concentrations of EPH may have been influenced by natural organic interference a second round of soil sampling was completed at the same locations in January 2016 with silica gel clean-up applied as part of the analysis. The results indicated that surface soil to the south contained EPH concentrations (i.e., 49 mg/kg) less than the Dutch Optimum Limit of 50 mg/kg and surface soil to the east contained EPH concentrations (i.e., 61 mg/kg and 57 mg/kg) marginally greater than the Dutch Optimum Limit of 50 mg/kg but significantly less than the Dutch Action Limit of 5,000 mg/kg.

5.0 REVIEW OF ENVIRONMENTAL LIABILITIES

There is no environmental liabilities risk assessment (ELRA) available for the site. The Scariff Civic Amenity Centre is considered a low risk site. The main environmental impacts associated with the site are contamination of groundwater, soil and surface waters. The likelihood of a fire on site is low and if a fire did happen it would be localised and not spread to the whole site. The site is covered in a concrete pavement and the only discharges are storm water runoff into the adjacent stream. Waste water from the office building and runoff from the compactor are directed to a septic tank and percolation area located in the woodland to the east of the site. The assessment of environmental liabilities at the site based on site observations and site sampling are outlined in Table 5-A below;

Table 5-A: Potential Environmental Liabilities at Scariff Civic Amenity Site

Potential Source and Impact	Potential for Impacts	Liability Comments
Run-off or spillage to yard surface and discharge to surface water receptor	The potential for impact is elevated without an oil/water interceptor system prior to surface water to the Cappaghbaun River.	There is no oil interceptor or silt trap on site and any spillages/leaks that occur on the lower yard could enter the surface water drainage system. There is no evidence of impacts to the surface water receptor. However, the installation of, at minimum, a bypass oil water interceptor that meets prEN 858 is required to provide environmental protection from surface water discharge from site, see section 5.1 below.
Leachate, fuel or oil spillage to yard surface and migration to surrounding soils.	Site sampling indicates that soils have not been impacted from contaminant migration. The broken curbs on site provide a pathway for potential impacts.	The missing curbing on the east and south sections of the yard must be repaired to provide continued protection to soils and shallow groundwater in the immediate vicinity of the site yard. .
Waste paint and waste oil storage leaks	All waste oils and paints are stored in a dedicated bunded chemstore structure that provides containment of all liquids.	The storage of oil on site is controlled and takes place on containment bunds. The facility yard also has a concrete surface so any small equipment leaks can be cleaned immediately and will not migrate to ground. The potential for impact is considered minimal.
pollution from inadequate septic tank treatment	Site sampling indicated that waste water in the septic system does not pose an environmental issue on site.	Continued monitoring and de-sludging of the septic system is required to ensure it continues to operate to the optimum level. Improved records of de-sludging and monitoring completed should be maintained.

5.1 Surface Water

A review of available surface water monitoring data section (3.2.2) and site sampling and monitoring data from December 2015 and January 2016 (section 3.4.5-3.4.8) indicated that site does not have a significant impact on surface water receptors. There would appear to be limited to no residual environmental liabilities associated with the site post licence surrender. The Cappaghbaun River which flows adjacent to the site is a tributary of the River Graney River and has been given an overall status of poor quality by the WFD Ireland based on data from final RBMP, 2009-2015, see Attachment 5. The surface water discharge from the site would not be expected to impact the quality status of the Cappaghbaun River.

However, condition 3.10 of the waste licence required a silt trap and oil separator onsite that meets the Draft European Standard prEN 858. The controls were required to provide mitigation of surface water discharge from the site in the event of an oil leak from vehicles and plant and accidental spillages on the yard surface.

A separator system which meets the requirements of European standards EN 858, should be installed at the Scariff Civic Amenity Centre and should at least be a bypass separator system. Bypass separators are used when it is considered an acceptable risk not to provide full treatment, for very high flows, and are used, for example, where the risk of a large spillage and heavy rainfall occurring at the same time is small. An example system from Klargester indicates that the system would fully treat all inputs to the system from rainfall or spillages that are equivalent to 6.5mm/hr, any levels of rainfall or spills greater than this will by-pass the separator. A brochure on BS EN 858 certified separators can be seen in Attachment 6. Based on the relatively low risk for a major spillage at the Scariff site a by-pass separator system should provide protection to the adjacent surface water receptor.

5.2 Soils and Groundwater

Soil sampling completed in December 2015 and January 2016 indicated no impact on soil quality from the historical operation of the site. The repairs to the curbing to the east and south of the site yard would provide protection to adjacent soils and groundwater from potential migration of contaminants from the site yard surface.

The results for sampling from the foul water system in December 2015 and January 2016 indicated that waste water did not contain contaminants of concern at concentrations that could impact soil or groundwater quality. Ongoing maintenance and monitoring would ensure that the septic system continues to operate efficiently.

6.0 REVISED SITE SAMPLING PROGRAMME

Based on the reviewed environmental monitoring and sampling completed at the Scariff facility it is proposed that the current sampling programme provided in schedule C of the waste licence be amended for the Certificate of Registration (CoR). The site is considered to have a low potential for environmental impact and the majority of monitoring results were less than the applicable regulatory limits or guidelines. The proposed adjustments are outlined below.

Ambient Air Quality

The current dust deposition sampling period is not in compliance with Schedule D.2 of the waste licence. For the CoR it is proposed that the monitoring be carried out once each year between May and September.

Surface Water

With regards to surface water sampling the revised programme will contain additional parameters such as hydrocarbons and metals. This decision is based on the fact that waste metals are stored onsite in proximity of drainage gullies and the site is used by vehicles both from members of the public and commercial vehicles. The frequency shall remain the same but the parameters measured will be as outlined in table 6.A.

Table 6-A: Revised Surface Water Sampling Program

Parameter	Monitoring Frequency	Analysis Method
pH	Annual	Standard Method
Electrical Conductivity	Annual	pH Meter
COD	Annual	Standard Method
BOD	Annual	Standard Method
NH ₄ -N	Annual	Standard Method
Suspended Solids	Annual	Standard Method
Dissolved Oxygen	Annual	Standard Method
Chloride	Annual	Standard Method
Arsenic	Annual	Standard Method
Boron	Annual	Standard Method
Cadmium	Annual	Standard Method
Chromium	Annual	Standard Method
Copper	Annual	Standard Method
Lead	Annual	Standard Method
Mercury	Annual	Standard Method
Nickel	Annual	Standard Method
Selenium	Annual	Standard Method
Zinc	Annual	Standard Method

Septic Tank

Sampling of the septic tank system for analysis indicated that concentrations of metals, hydrocarbons and organics such as BOD and COD were less than the surface water and groundwater Regulations and guidelines. It is proposed that annual monitoring of the septic system include the parameters in Table 6-B.

Table 6.B: Proposed Septic Tank Monitoring Programme.

Parameter	Monitoring Frequency	Analysis Method
pH	Annual	Standard Method
Electrical Conductivity	Annual	pH Meter
COD	Annual	Standard Method
BOD	Annual	Standard Method
NH ₄ -N	Annual	Standard Method
Suspended Solids	Annual	Standard Method
Chloride	Annual	Standard Method
Arsenic	Annual	Standard Method
Boron	Annual	Standard Method
Cadmium	Annual	Standard Method
Chromium	Annual	Standard Method
Copper	Annual	Standard Method
Lead	Annual	Standard Method
Mercury	Annual	Standard Method
Nickel	Annual	Standard Method
Selenium	Annual	Standard Method
Zinc	Annual	Standard Method
Fats,Oil,Grease	Annual	Standard Method

Groundwater

There is no current groundwater monitoring on site and will not be included in the revised programme for the certificate of registration. .

7.0 CONCLUSIONS AND RECOMMENDATIONS

This report outlines the findings of the Independent Closure Audit completed as part of the Surrender of waste licence W0150-01 at Scariff Civic Amenity Centre. The audit included a review of available information, a site walkover and limited environmental sampling to assess if impacts exist from historic use of the licensed facility that may need to be addressed prior to the site licence surrender.

The waste licence at the Scariff facility is based on the activity classification 12 & 13 in accordance with the Third Schedule of the Waste Management Act 1996 and classes 2, 3, 4 and 13 in accordance with the Fourth Schedule of the Waste Management Act 1996. The total waste tonnage on site has declined below 1,000 tonnes annually and is showing a decreasing trend and Clare County Council are applying for a licence surrender and to operate the site under an EPA regulated Certificate of Registration.

Waste Licence Documentation Review

All documentation concerned with waste licence W0150-01 was examined for compliance as part of the ICA procedure. Scariff Civic Amenity centre has a low risk in terms of environmental liabilities and impacts but the site was found to have a number of non-compliances in terms of onsite records and information. The examination of the documentation concluded that an improvement in recorded keeping and management must be completed on site as part of future regulatory compliance.

Site Walkover/Environmental Monitoring

As part of the independent closure assessment procedure a site walkover including interviews with staff was completed on December 8th 2015. In addition to the site walkover, SNC completed environmental sampling at identified locations where potential environmental impacts may occur from the site activities (i.e., surface water discharge, surface soils adjacent to missing curbing and waste water discharge to the septic system) to assess environmental media quality and assess potential impacts from historic site activities.

The site walkover concluded that Scariff site was generally compliant with the waste licence. All oils and liquids were appropriately stored in bunded areas with secondary containment. There were no leaks observed from the compactor and the site was generally clean with just a few bits of windblown paper.

Surface Water

The surface water drainage system was observed and the flow identified as outlined in Drawing No. 01 in Attachment 2. However, no oil/water interceptor was found on site as required under the licence conditions. Although the historical surface water sample results and the results of the sampling completed in December 2015 and 2016 did not identify any significant impact to surface water quality

from surface water discharge from the site it is recommended that a bypass interceptor system that meets EN 858 be installed in the surface water drainage system prior to SW1.

Waste Water

The waste water drainage system was observed and the flow identified as outlined in Drawing No. 01 in Attachment 2. The system collects water from the site office and the road gully at the site compactor unit. The sample analysis results from December 2015 and January 2016 did not identify any significant impact to waste water quality prior to discharge to the percolation area. It is recommended that scheduled de-sludging of the septic tank system be completed and annual sampling be completed to ensure optimum system operation. All results should be logged and filed on site.

Soils

It was also observed that there was curbing missing at the eastern and southern boundaries of the yard close to WEE and white goods storage areas. Surface soil sampling results indicated that soil quality was not impacted and the concentrations of contaminants of concern were significantly less than the Dutch Action Limits and most parameters were less than the Dutch Optimum Limits indicating that surface water runoff in the vicinity of the missing curbs had not impacted soil quality. It is recommended that the curbing be repaired and sealed to prevent surface water migration from the concrete surface to ground.

Air Quality

All dust deposition results were below the ELV's in the licence. However the sampling period needs to be conducted in the months stated in schedule D of the waste licence "Once between May and September".

ATTACHMENT 1

Site Photographs



Photograph 1: Site Office



Photograph 2: Upper Yard with Recycling Banks



Photograph 3: Bunded and Covered ChemStore for Haz Waste Storage.



Photograph 4: Compactor Unit with associated Road Gully.



Photograph 5: Lower yard Area – White Goods & WEEE Storage



Photograph 6: Soil Sample Location at Edge of Missing Curbing on East Boundary



Photograph 7: Upstream Sample Location



Photograph 8: Surface Water Discharge at SW1



Photograph 9: Soil Sample Location at Missing Curbing at South Boundary

ATTACHMENT 2

Drawings

- **Figure 1 – Site Location Map**
- **Figure 2 – Location Map**
- **Drawing No. 01 – Existing Site Layout Foul & Surface water Drainage**
- **Drawing 2.1 – Bedrock Geology**
- **Drawing 2.2 – Aquifer Classification Map**
- **Drawing 2.3 – Groundwater Vulnerability Map**
- **03-1045-01 – Monitoring Point Locations**

Figure 1: Site Location Map 1

ite location with respect to Scarriff Urban Area and Neighbouring Propert

- Location of Site Notice
- Battlefield
- ▨ Land Area comprising Civic Amenity Centre
- Location of Mart
- ▨ Finsa Forest Products Ltd.

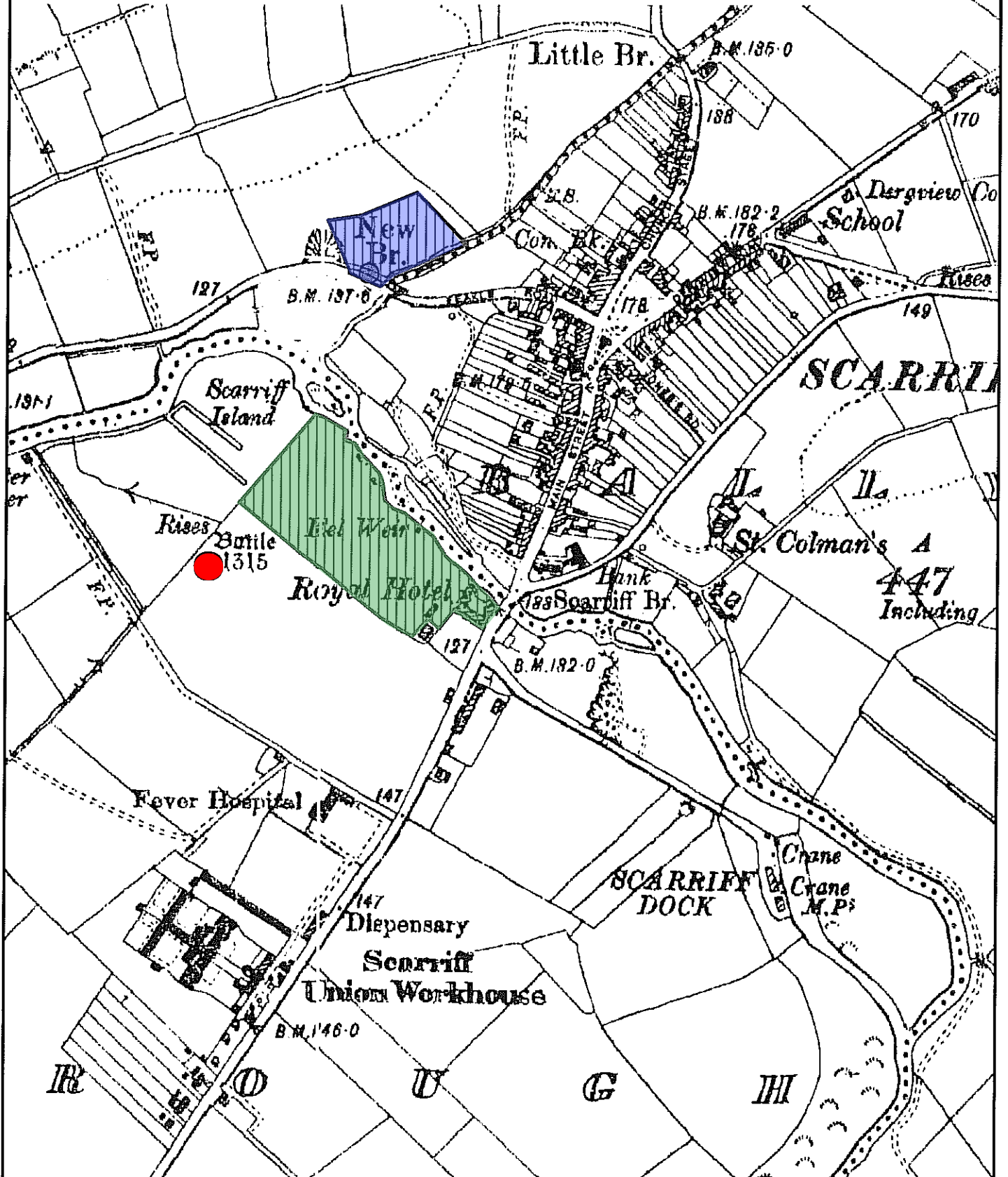


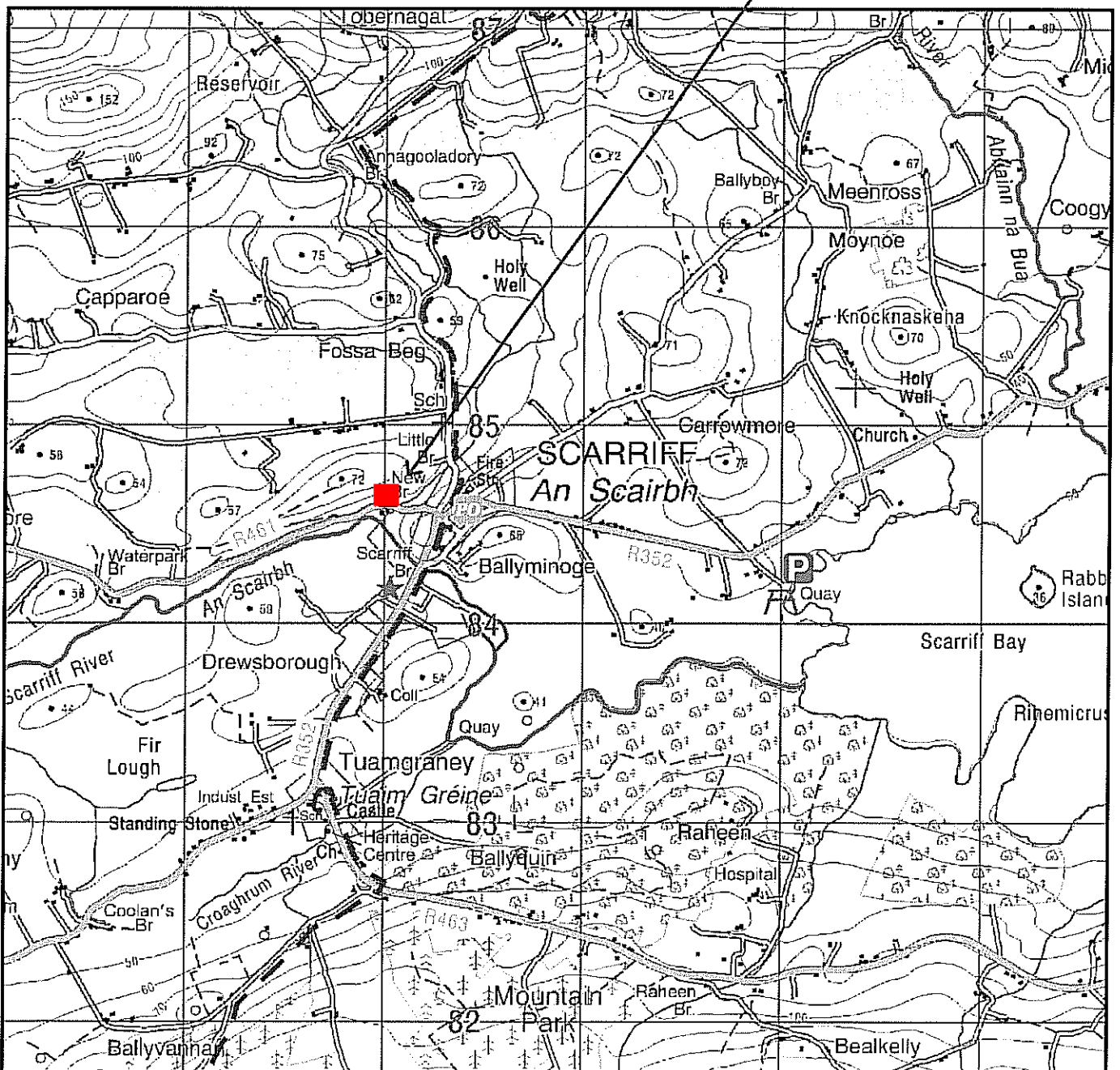
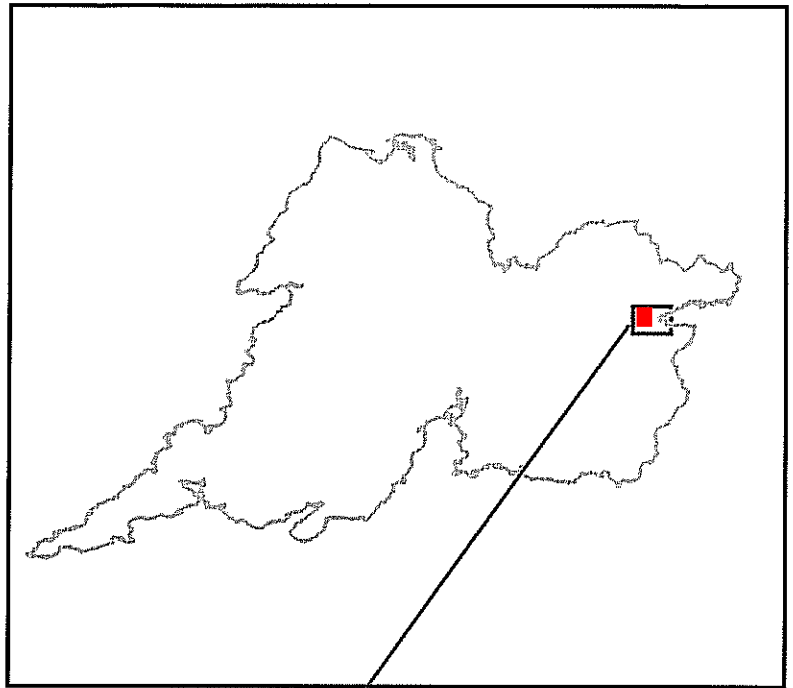
Figure 2: Location Map 2

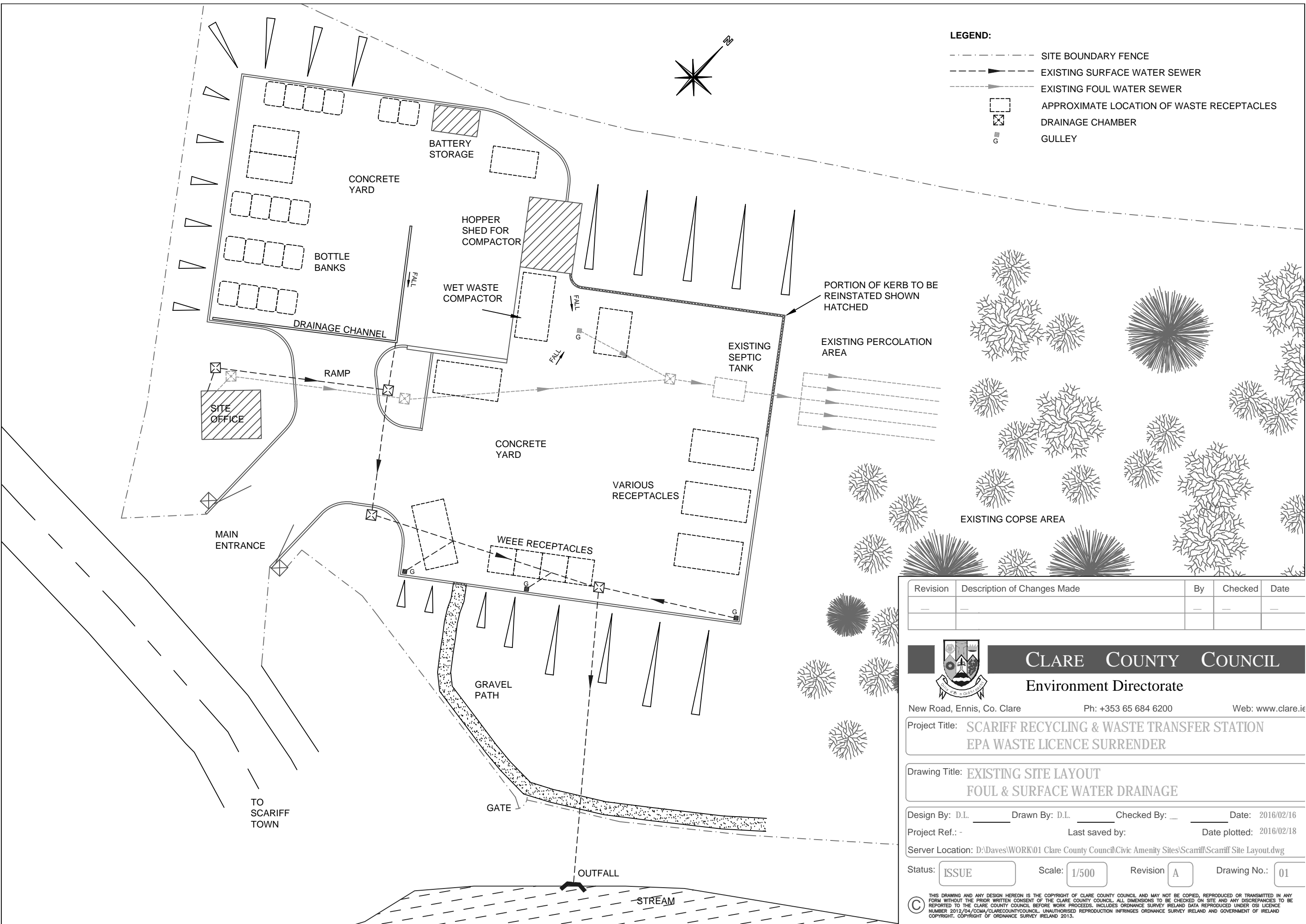
Discovery Series Location Map

Scale 1:50,000

■ Location of Civic Amenity Site

Grid Reference: 1640 E, 1845 N





- LEGEND:**
- - - - - SITE BOUNDARY FENCE
 - - - - -> EXISTING SURFACE WATER SEWER
 - - - - -> EXISTING FOUL WATER SEWER
 - APPROXIMATE LOCATION OF WASTE RECEPTACLES
 - ⊠ DRAINAGE CHAMBER
 - G GULLY

Revision	Description of Changes Made	By	Checked	Date
-	-	-	-	-

CLARE COUNTY COUNCIL

Environment Directorate

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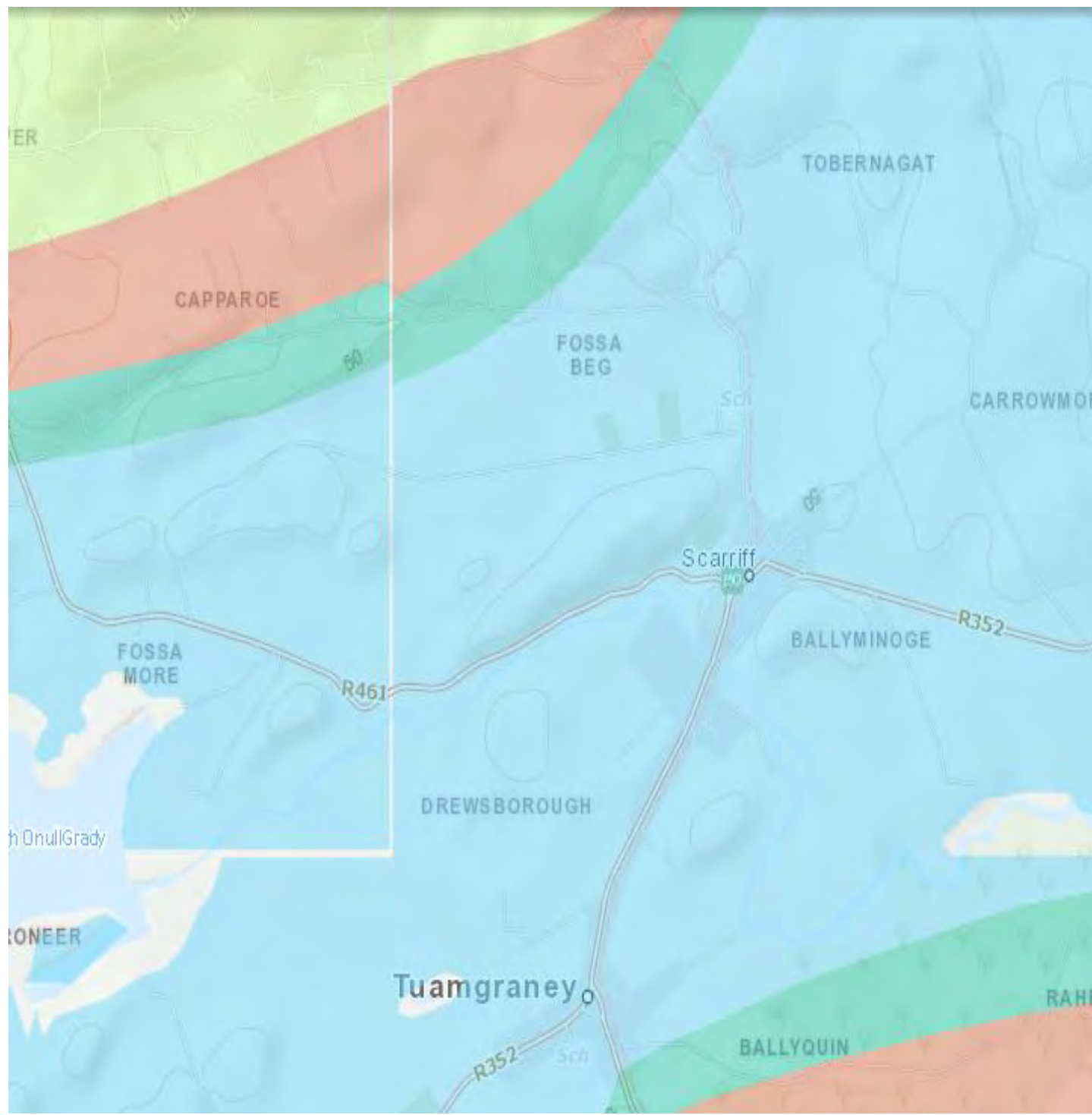
Project Title: **SCARIFF RECYCLING & WASTE TRANSFER STATION
EPA WASTE LICENCE SURRENDER**

Drawing Title: **EXISTING SITE LAYOUT
FOUL & SURFACE WATER DRAINAGE**

Design By: D.L. Drawn By: D.L. Checked By: Date: 2016/02/16
 Project Ref.: Last saved by: Date plotted: 2016/02/18
 Server Location: D:\Daves\WORK\01 Clare County Council\Civic Amenity Sites\Scariff\Scariff Site Layout.dwg

Status: ISSUE Scale: 1/500 Revision: A Drawing No.: 01

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JRE
Environmental Consulting

Legend:

- Dinantian Lower Impure Limestone
- Dinantian (early) Sandstones, Shales and Limestone
- Devonian Old Red Sandstones
- Silurian Metasediments and Volcanics

Notes

1. Original Drawing in Colour
2. Location of existing utilities are approximate and should be confirmed onsite

REFERENCE DRAWINGS

DWG. NO.	DATE	DESCRIPTION

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
0	-	-	-	-

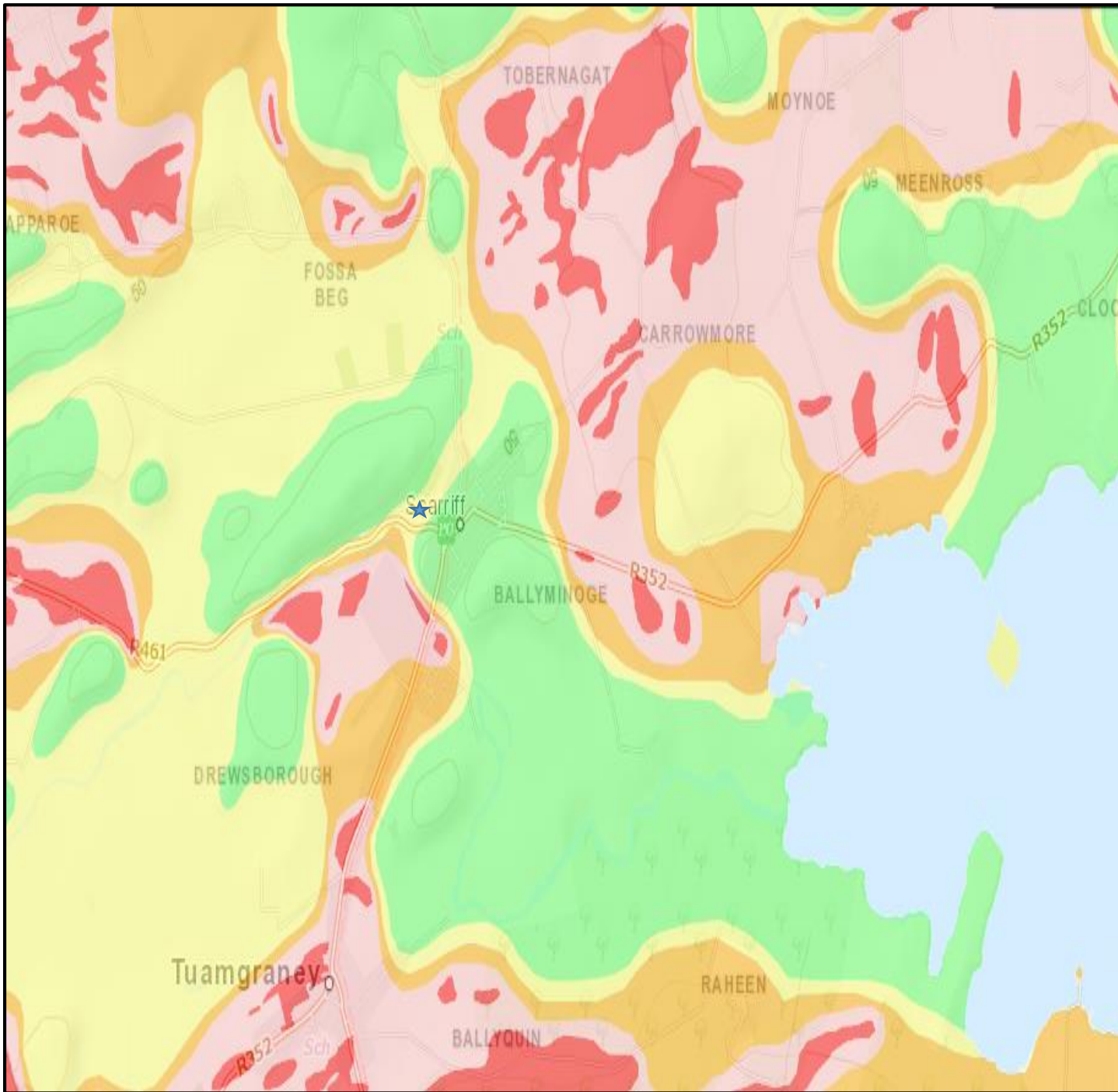


Client Name: Clare Co. Co.

Project Location: Scariff, Co. Clare

Title: Bedrock Geology Map

DWN BY: JR	Scale:	Date:	Drawing No.
CKD	Plot:	05/02/16	2.1



JRE
Environmental Consulting

Legend:

■	X - Rock at or near surface or Kars
■	E - Extreme
■	H - High
■	M - Moderate
■	L - Low
■	W - Water

Notes

1. Original Drawing in Colour
2. Location of existing utilities are approximate and should be confirmed onsite

REFERENCE DRAWINGS				
DWG. NO.	DATE	DESCRIPTION		
REVISIONS				
0	-	-	-	-
REV.	DATE	DESCRIPTION	BY	CHK

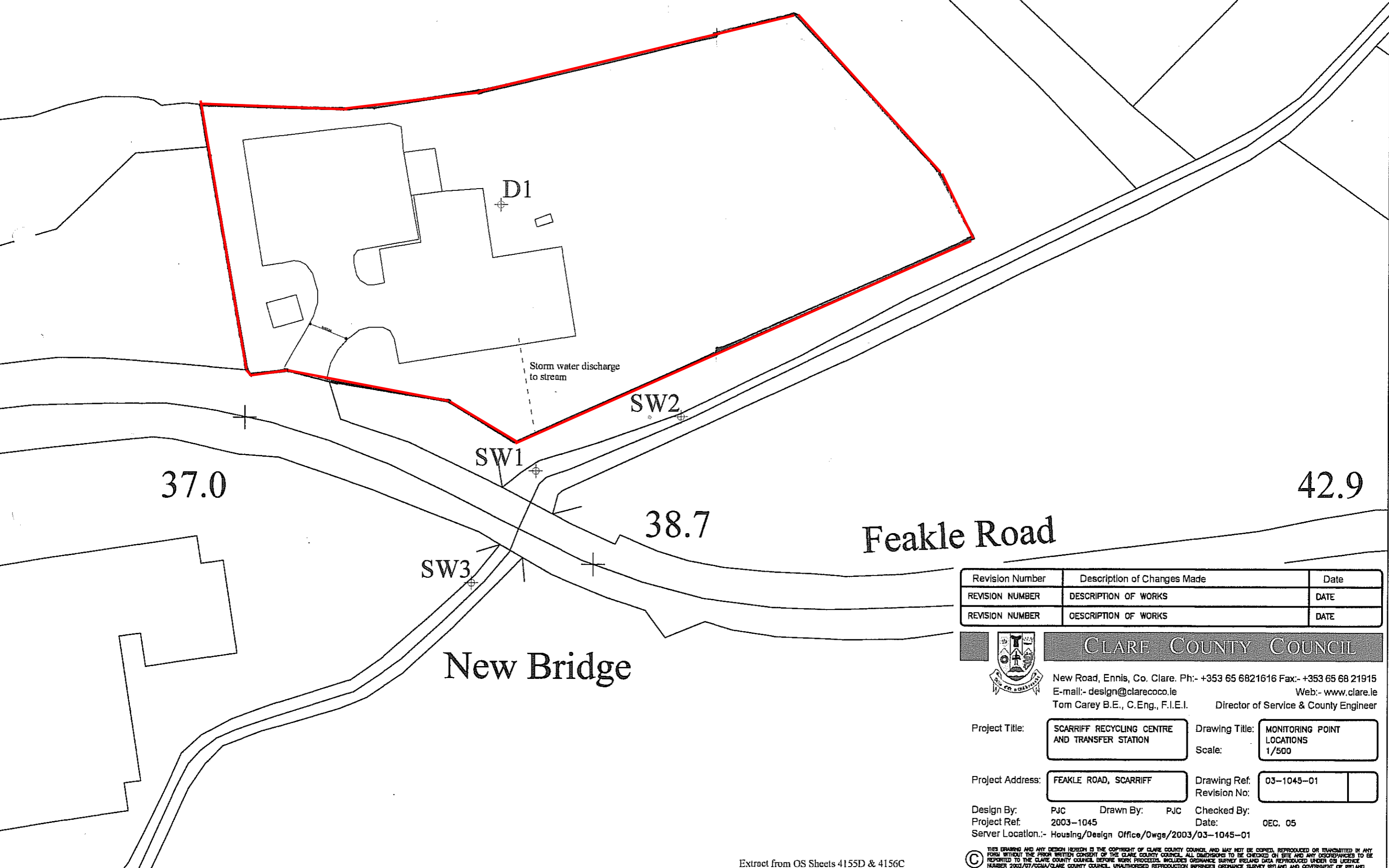
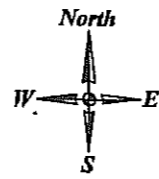


Client Name: Clare Co. Co. Project Location: Scariff, Co. Clare


Title: Groundwater Vulnerability Map

DWN BY: JR	Scale:	Date	Drawing No.
CKD	Plot:	05/02/16	2.3

	Monitoring Point		Coordinates	
	Point	Easting	Northing	
SURFACE	SW1	164064	184587	
WATER	SW2	164085	184595	
	SW3	164055	184571	
DUST	D1	164059	184625	



Revision Number	Description of Changes Made	Date
REVISION NUMBER	DESCRIPTION OF WORKS	DATE
REVISION NUMBER	DESCRIPTION OF WORKS	DATE


CLARE COUNTY COUNCIL
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 Tom Carey B.E., C.Eng., F.I.E.I. Director of Service & County Engineer

Project Title: **SCARRIFF RECYCLING CENTRE AND TRANSFER STATION** Drawing Title: **MONITORING POINT LOCATIONS**
 Scale: **1/500**

Project Address: **FEAKLE ROAD, SCARRIFF** Drawing Ref: **03-1045-01**
 Revision No:

Design By: **PJC** Drawn By: **PJC** Checked By:
 Project Ref: **2003-1045** Date: **DEC. 05**
 Server Location:- **Housing/Design Office/Owgs/2003/03-1045-01**

Extract from OS Sheets 4155D & 4156C

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Sample ID	Sample Date	Metals Concentration (mg/kg)									Hydrocarbons	Other	
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Zinc	EPH (C8-C40)	Moisture Content	PO4
SS02- (0.1)	08/12/2015	1.3	0.4	67.2	22	118	0.1	27.1	1	185	243	27.2	1.6
SS02- (0.1 - 0.3)	08/12/2015	2.2	0.4	65.3	17	68	<0.1	22.5	1	116	341	33.3	0.9
S03 - East	19/01/16	6.7	0.4	182.2	26	104	<0.1	30.3	<1	211	57	24.3	

Sample ID	Sample Date	Metals Concentration (mg/kg)									Hydrocarbons	Other	
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Zinc	EPH (C8-C40)	Moisture Content	PO4
SS01- (0.1)	08/12/2015	<0.5	0.4	96.7	8	34	<0.1	68.3	1	234	1644	12.4	0.4
SS01-(0.1 -0.3)	08/12/2015	2.6	0.4	51.3	228	88	<0.1	25.6	1	255	197	28.2	1.4
S02-East	19/01/16	5.6	0.5	165.9	28	95	<0.1	32.2	1	311	61	41.2	



Sample ID	Sample Date	Metals Concentration (mg/kg)									Hydrocarbons	Other	
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Zinc	EPH (C8-C40)	Moisture Content	PO4
S01 - South	19/01/16	4.1	0.4	25.2	19	17	0.3	14.8	<1	117	49	16.4	

ATTACHMENT 3

Site Audit Form

STAGE 1
Site Audit Checklist

JRE Reviewers

Date: 07/12/15

1. John Rea. 2.

Project: 3196

Weather

9 °C - Rainy + Cloudy.

SECTION I - GENERAL INFORMATION

Owner of Property (Individual/Company Name)

Clare Co. Co.

Address of Property

Town/City/

County

Feakle Road

Scariff

Clare

Client Name & Address (if different from above)

Clare County Council

Contact Person

Position

Telephone No(s).

~~Facsimile No.~~

David Leahy

Exec. Engineer

Property Occupied By (if different from above)

As Above.

~~Legal~~ Description of Site

Civic Amenity Site Consisting of Waste Receptacles, waste oil/paint
Churnstone + Compactor Unit - Surface is Concrete.

Regulatory Licence / permit Details

Waste licence W0150-01 - Client Seeking licence Surrender.

Physical Description (attach sketch or site plan)

As outlined in site Description Above. - Also has site office - Surface water
drains to adjacent Cappaghbanon River. Waste water from office + Compactor gully to Septic Tank.

Buildings on Site: Description, Size, Construction, Age and Use

2 Structures - Site office, Block Construction, 17 years old, Slate Roof

- Cover at Compactor Hopper Feed, metal Construction, 17 Years old.

Present Use of Site

Civic Amenity Site. - Used for Collection of household recyclables,

Municipal waste and household Hazardous waste.

Services (underground, overhead) Affecting the Site and/or Surrounding Properties (including pipelines, manholes, roads, rights-of-way)

- No overground Services in Yard.
- Surface water Drainage System
- Waste/Foul water Drainage System.
- None Affect Adjacent properties.

A. EXTERIOR INDICATIONS (Signs of Contamination)	Yes	No	Unknown or N/A	Comments
Recently replaced/removed gravel or concrete	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Degraded concrete/asphalt	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Truck or rail loading/unloading areas	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Stained or discoloured ground surface (soil, asphalt, etc.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Some black staining on Concrete south of Compressor - looks like melted plastic residue.
Stressed vegetation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Evidence of soil deposit/removal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Odours	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Noise	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Regular operational noise.
Former buildings (e.g., footings)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surface Water - discolouration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Surface water locations SW1, SW2 + SW3 were flooded during site visit
Contamination evident in catch basins/drains	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Water in Septic appeared relatively clear
Pits, ponds or lagoons	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Other debris, piles (describe)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Wastes were held in dedicated Bins - some materials at North boundary of site that could be tidied up.
Pesticides/herbicides (evidence of use or storage)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

SECTION II CONT'D – SITE INSPECTION

B. STORAGE TANKS

(Age, Quantity, Integrity & Contents)

Yes No Unknown
N/A

Comments

1) Above Ground Tanks

Tanks in use

Any indication of tank(s) previously on site and removed/abandoned

Evidence or records of spills, leaks

Site records were not significant - but no spills were recorded or remembered by staff.

Tank testing (what, when)

Description of Tank(s) (age, type, capacity, contents, etc.)

2) Underground Tanks

Tanks in use

Septic Tank.

Any indication of tank(s) previously on site and removed/abandoned (i.e., fill pipes, vent pipes, concrete pads)

Evidence or records of spills, leaks, overfilling

Tank testing (what, when)

No record of desludging or any other Test on Tank.

Description of Tank(s) (age, type, capacity, contents, etc.)

Concrete Septic Tank, approx. 17 years old (ie age of site).

C. MATERIAL HANDLING

Describe nature and quantities of materials handled (including process details)

Shop areas (hoists, separators)

Floor drains, sumps (indicate whether full)

Containment areas (liquid storage, transfer)

Chemstore - Covered & bonded area for Household Haz waste storage.

Petroleum liquids (fuels, oils, lubricants)

Waste oils received from public stored in Chemstore.

SECTION II CONT'D – SITE INSPECTION

C. MATERIAL HANDLING CONT'D	Yes	No	Unknown	Comments
Liquids chemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> N/A	
WHMIS controlled substances	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
MSDSs available/reviewed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Solids handling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence or records of leaks, spills	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Unidentified drums, containers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Further Comments:

D. WASTE MANAGEMENT: Accumulation, Storage, Disposal	Yes	No	Unknown	Comments
Waste handling/disposal areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Recyclables + mixed municipal waste. HHH Haz waste from Public.
Secondary containment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cleanstore is bonded.
Waste generation/disposal records	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tonnages of wastes handled are recorded by Operatives.

Description, source, quantity of waste:

Solid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Recyclables + mixed Municipal waste.
Liquid (chemical, hazardous)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Household Haz - Paint/waste oil etc.
Unidentified/unlabelled wastes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Permits/approvals (municipal, provincial, federal)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

E. WATER/WASTE WATER MANAGEMENT	Yes	No	Unknown	Comments
Potable water - site (describe source)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mains Water Source from Scariff
Potable water - adjacent properties (describe source)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Neighbouring waterways, streams or creeks (within 200 m)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cappaghbanua River located approx 30m South of site.
Apparent groundwater flow direction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	South.
Sanitary discharge (describe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Septic Tank System directed to Septic field located east of yard in woods
Storm water discharge(s) (describe)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- Discharge at SW1 to Cappaghbanua River to South.
Waste water discharge(s):				
i) to sanitary sewer	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
ii) to storm sewer	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Oil water separator(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No Separator located on site

SECTION II CONT'D – SITE INSPECTION

F. <u>AIR EMISSIONS</u>	Yes	No	Unknown	Comments
Roof access	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Process stacks/vents	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Unidentified stacks/vents	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Apparent contamination issues (e.g., visible or odourous emissions)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
G. <u>BUILDING MATERIALS</u>				
1) Suspect Asbestos				
Sprayed on fire proofing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Pipe wrap	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Ceiling materials (tiles, plaster)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Inter Ceiling is plasterboard.
Flooring materials (linoleum)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Apparent friable fibres	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other potential sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Building built in 1999 - not
Reason to suspect asbestos (building age 17 years)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Suspected to contain Asbestos.
2) Urea Formaldehyde Foam Insulation (UFFI)				
Any insulation retrofits	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Reason to suspect UFFI (date of renovation)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3) Lead Based Paints				
Evidence of peeling, cracking or flaking paint	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Any reason to suspect	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
H. <u>PCBS</u>				
Any containers or equipment (capacitors, transformers) containing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
PCBs now on site (pole or pad mounted)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Evidence of leakage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
PCB containing fluorescent light ballasts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Hydraulic hoists, elevators, lifts installed prior to 1978	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Any PCBs previously on site and removed	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Any reason to suspect PCB contamination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

SECTION II CONT'D -- SITE INSPECTION

I. MISCELLANEOUS ISSUES	Yes	No	Unknown	Comments
Reason to suspect radon	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	low Potential according to
Poor housekeeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EPA Radon map
Lack of emergency procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5% - 10% chance of
Lack of fire systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	high radon
Lack of site security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Environmentally sensitive areas in proximity (e.g., wetlands, habitat)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

SECTION III -- ADJACENT PROPERTIES

Current Use:

North: Agricultural Fields

South: Bushes + Then Cappaghoban River + Feakle Road.

East: Wooded Area with Fields beyond.

West: Car Park area + Then Fields.

Apparent Environmental Issues Associated with Current Use:

No Interceptor on site - potential for impact to River
Missing Catching may provide pathway for Contaminants to soil/GW

SECTION IV -- IDENTIFICATION OF POTENTIAL CONCERNS

Describe any known or suspected potential environmental concerns (risks) relating to the site or adjacent properties based on Sections I-III above.

Potential Impact to Soils - Surface soil Sampling at areas where
Catching is missing

Surface Water - Collect Surface Water + Analyse for Hydrocarbons + metals
which are potential COCs but not analysed for. Need to assess HC Concentrations
due to lack of separator on site.

- Check Septic outfall to drainage field to ensure it is not impacting Soil quality.

John Lee

(1) Reviewer's Signature

(2) Reviewer's Signature

ATTACHMENT 4

Laboratory Reports



Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

John Rea Environmental Ltd
Purcellsinch Business Park
Carlow Road
Kilkenny
Ireland

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781



Attention : John Rea
Date : 21st December, 2015
Your reference : 3156
Our reference : Test Report 15/17521
Location : DOORA
Date samples received : 8th December, 2015
Status : Final report
Issue : 1

Eleven samples were received for analysis on 8th December, 2015 of which eleven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied. All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Belinda Lewsley BA
Project Co-ordinator

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/17521

SOILS

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

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

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

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

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

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

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

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

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

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

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

WATERS

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

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

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

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

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

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

DILUTIONS

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

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

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

JE Job No: 15/17521

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes			
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.			AD	Yes
TM57	Modified US EPA Method 410.4. Chemical Oxygen Demand is determined by hot digestion with Potassium Dichromate and measured spectrophotometrically.	PM0	No preparation is required.	Yes			
TM58	Modified USEPA methods 405.1 and BS 5667-3. Measurement of Biochemical Oxygen Demand.	PM0	No preparation is required.	Yes			

JE Job No: 15/17521

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO2 and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.	Yes			



Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

John Rea Environmental Ltd
Purcellsinch Business Park
Carlow Road
Kilkenny
Ireland

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781



Attention : John Rea
Date : 29th January, 2016
Your reference : 3156
Our reference : Test Report 16/3739 Batch 1
Location : Scariff
Date samples received : 21st January, 2016
Status : Final report
Issue : 1

Seven samples were received for analysis on 21st January, 2016 of which seven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Phil Sommerton BSc
Project Manager

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 16/3739

SOILS

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

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

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

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

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

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

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

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

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

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

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

WATERS

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

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

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

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

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

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

DILUTIONS

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

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

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

JE Job No: 16/3739

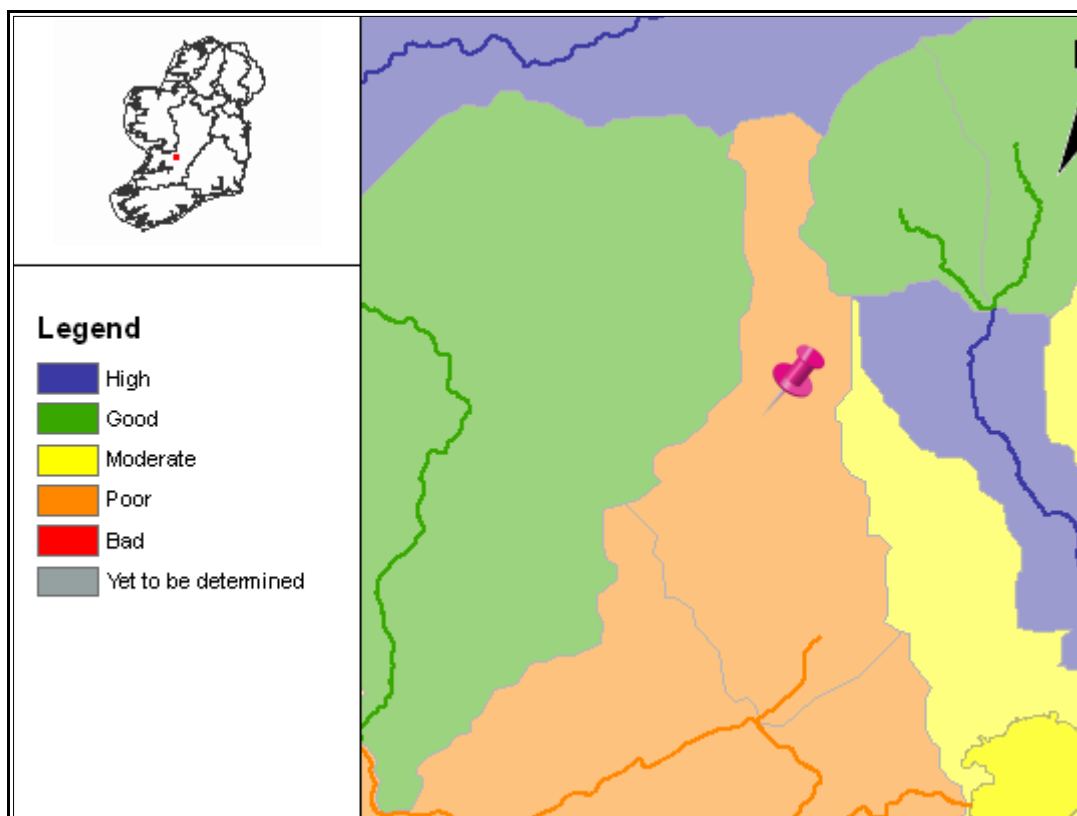
Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM37	Modified USEPA 160.2 .Gravimetric determination of Total Suspended Solids. Sample is filtered and the resulting residue is dried and weighed.	PM0	No preparation is required.				
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.				
TM58	Modified USEPA methods 405.1 and BS 5667-3. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand.	PM0	No preparation is required.				
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.				

ATTACHMENT 5

WFD Quality Status of Cappaghabaun River



Full Report for Waterbody Cappaghabaun, Trib of Graney



River Basin Management Plans (RBMPs) have been published for all River Basin Districts in Ireland in accordance with the requirements of the Water Framework Directive. The WaterMaps viewer is an integral part of the River Basin Management Plan and provides access to information at individual waterbody level and at Water Management Unit level for all the River Basin Districts in Ireland.

The following report provides summary plan information about the selected waterbody (indicated by the pin in the map above) relating to its status, risks, objectives, and measures proposed to retain status where this is adequate, or improve it where necessary. Waterbodies can relate to surface waters (these include rivers, lakes, estuaries [transitional waters], and coastal waters), or to groundwaters. Other relevant information not included in this report can be viewed using the WaterMaps viewer, including areas listed in the Register of Protected Areas.

You will find brief notes at the bottom of some of the individual report sheets that will help you in interpreting the information presented. More detailed information can be obtained in relation to all aspects of the RBMPs at www.wfdireland.ie.



Summary Information:

Water Management Unit: IE_SH_LoughDerg
WaterBody Category: River Waterbody
WaterBody Name: Cappaghbaun, Trib of Graney
WaterBody Code: IE_SH_25_1948
Overall Status: Poor
Overall Objective: Restore_2021
Overall Risk: 2b Not At Risk
Heavily Modified: No



Report data based upon final RBMP, 2009-2015.

The information provided above is a summary of the principal findings related to the selected waterbody. Further details and explanation of individual elements of the report are outlined in the following pages.



Status Report

Water Management Unit: IE_SH_LoughDerg
WaterBody Category: River Waterbody
WaterBody Name: Cappaghabaun, Trib of Graney
WaterBody Code: IE_SH_25_1948
Overall Status Result: Poor
Heavily Modified: No



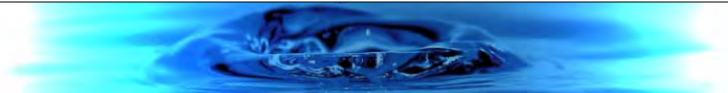
Status Element Description		Result
Status information		
Q	Macroinvertebrate status	Poor
PC	General physico-chemical status	N/A
FPO	Freshwater Pearl Mussel / Macroinvertebrate status	N/A
DIA	Diatoms status	N/A
HYM	Hydromorphology status	N/A
FIS	Fish status	N/A
SP	Specific Pollutants status (SP)	N/A
ES	Overall ecological status	Poor
CS	Overall chemical status (PAS)	n/a
EXT	Extrapolated status	N/A
MON	Monitored water body	YES
DON	Donor water bodies	N/A

n/a - not assessed

Status

By 'Status' we mean the condition of the water in the waterbody. It is defined by its chemical status and its ecological status, whichever is worse. Waters are ranked in one of 5 status classes: High, Good, Moderate, Poor, Bad. However, not all waterbodies have been monitored, and in such cases the status of a similar nearby waterbody has been used (extrapolated) to assign status. If this has been done the first line of the status report shows the code of the waterbody used to extrapolate.

You can read more about status and how it is measured in our RBMP Document Library at www.wfdireland.ie (Directory 15 Status).



Risk Report

Water Management Unit: IE_SH_LoughDerg
WaterBody Category: River Waterbody
WaterBody Name: Cappaghabaun, Trib of Graney
WaterBody Code: IE_SH_25_1948
Overall Risk Result: 2b Not At Risk
Heavily Modified: No



Risk Test Description		Risk
Diffuse Risk Sources		
RD1	EPA diffuse model (2008)	1b Probably At Risk
RD2a	Road Wash - Soluble Copper	2b Not At Risk
RD2b	Road Wash - Total Zinc	2b Not At Risk
RD2c	Road Wash - Total Hydrocarbons	2b Not At Risk
RD3	Railways	2b Not At Risk
RD4a	Forestry - Acidification (2008)	2a Probably Not At Risk
RD4b	Forestry - Suspended Solids (2008)	2a Probably Not At Risk
RD4c	Forestry - Eutrophication (2008)	2a Probably Not At Risk
RD5	Overall Unsewered (2008)	2b Not At Risk
RD5a	Unsewered Areas - Pathogens (2008)	2a Probably Not At Risk
RD5b	Unsewered Phosphorus (2008)	2b Not At Risk
RD6a	Arable	2b Not At Risk
RD6b	Sheep Dip	2b Not At Risk
RD6c	Forestry - Dangerous Substances	2a Probably Not At Risk
RDO	Diffuse Overall -Worst Case (2008)	1b Probably At Risk
Hydrology		
RHY1	Water balance - Abstraction	2b Not At Risk
Morphological Risk Sources		
RM1	Channelisation (2008)	2b Not At Risk
RM2	Embankments (2008)	2b Not At Risk
RM3	Impoundments	2b Not At Risk
RM4	Water Regulation	2b Not At Risk
RM5	Intensive Landuse	N/A
RMO	Morphology Overall - Worst Case (2008)	2b Not At Risk



Overall Risk		
RA	Rivers Overall - Worst Case (2008)	2b Not At Risk
Point Risk Sources		
RP1	WWTPs (2008)	2b Not At Risk
RP2	CSOs	2b Not At Risk
RP3	IPPCs (2008)	2b Not At Risk
RP4	Section 4s (2008)	2b Not At Risk
RP5	WTPs/Mines/Quarries/Landfills	N/A
RPO	Overall Risk from Point Sources - Worst Case (2008)	2b Not At Risk
Q Value		
Q	EPA Q rating and Margaritifera Assessment	N/A
Q/RDI or Point/Diffuse		
OPD	Q class/EPA Diffuse Model or worst case of Point and Diffuse (2008)	2b Not At Risk
Rivers Direct Impacts		
RD11	Rivers Direct Impacts - Dangerous Substances	N/A

Risk

By 'risk' we mean the risk that a waterbody will not achieve good ecological or good chemical status/potential at least by 2015. To examine risk the various pressures acting on the waterbody were identified along with any evidence of impact on water status. Depending on the extent of the pressure and its potential for impact, and the amount of information available, the risk to the water body was placed in one of four categories: 1a at risk; 1b probably at risk; 2a probably not at risk; 2b not at risk. Note that '2008' after the risk category means that the risk assessment was revised in 2008. All other risks were determined as part of an earlier risk assessment in 2005.

You can read more about risk assessment in our 'WFD Risk Assessment Update' document in the RBMP document library, and other documents at www.wfdireland.ie (Directory 31 Risk Assessments).



Objectives Report

Water Management Unit: IE_SH_LoughDerg

WaterBody Category: River Waterbody

WaterBody Name: Cappaghbaun, Trib of Graney

WaterBody Code: IE_SH_25_1948

Overall Objective: Restore_2021

Heavily Modified: No



Objectives Description		Result
Extended timescale information		
E1	Extended timescales due to time requirements to upgrade WWTP discharges	No Status
E2	Extended timescales due to delayed recovery of chemical pollution and chemical status failures	No Status
E3	Extended timescales due to delayed recovery following reduction in agricultural nutrient losses	No Status
E4	Extended timescales due to delayed recovery from physical modifications and physical damage	No Status
E5	Extended timescales due to delayed recovery following implementing forestry acidification measures	No Status
E6	Extended timescales due to physical recovery timescales at mines and contaminated sites	No Status
E7	Extended timescales due to delayed recovery of highly impacted sites	2021
E8	Extended timescales due to delayed recovery following reduction in agricultural nutrient losses	No Status
E9	Extended timescales due to delayed recovery from nitrogen losses to estuaries	No Status
E10	Extended timescales due to delayed recovery following reduction in agricultural nutrient losses	No Status
E11	Extended timescales due to delayed recovery from physical modifications and physical damage (overgrazing)	No Status
E12	Extended timescales due to delayed recovery from physical modifications and physical damage (channelisation)	No Status
E13	Extended timescales from Northern Ireland Environment Agency	No Status
EOV	Overall extended timescale - combination of all extended timescales fields	2021
E14	Extended timescales due to the presence of Freshwater Pearl Mussel populations	No Status
EX15	Extended timescales due to highly impacted sites	2021
Objectives information		



OB1	Prevent deterioration objective	No Status
OB2	Restore at least good status objective	No Status
OB3	Reduce chemical pollution objective	No Status
OB4	Protected areas objective	Restore_2021
OB5	Northern Ireland Environment Agency objective	No Status
OBO	Overall objectives	Restore_2021

Extended timescales

Extended timescales have been set for certain waters due to technical, economic, environmental or recovery constraints. Extended timescales are usually of one planning cycle (6 years, to 2021) but in some cases are two planning cycles (to 2027).

Objectives

In general, we are required to ensure that our waters achieve at least good status/potential by 2015, and that their status does not deteriorate. Having identified the status of waters (this is given earlier in this report), the next stage is to set objectives for waters. Objectives consider waters that require protection from deterioration as well as waters that require restoration and the timescales needed for recovery. Four default objectives have been set initially:-

- Prevent Deterioration*
- Restore Good Status*
- Reduce Chemical Pollution*
- Achieve Protected Areas Objectives*

These objectives have been refined based on the measures available to achieve them, the latter's likely effectiveness, and consideration of cost-effective combinations of measures. Where it is considered necessary extended deadlines have been set for achieving objectives in 2021 or 2027.



Measures Report

Water Management Unit: IE_SH_LoughDerg

WaterBody Category: River Waterbody

WaterBody Name: Cappaghabaun, Trib of Graney

WaterBody Code: IE_SH_25_1948

Heavily Modified: No



	Measures Description	Applicable
BC	Total number of basic measures which apply to this waterbody	20
BW	Directive - Bathing Waters Directive	No
BIR	Directive - Birds Directive	Yes
HAB	Directive - Habitats Directive	No
DW	Directive - Drinking Waters Directive	No
MAE	Directive - Major Accidents and Emergencies Directive	Yes
EIA	Directive - Environmental Impact Assessment Directive	Yes
SS	Directive - Sewage Sludge Directive	Yes
UWT	Directive - Urban Waste Water Treatment Directive	Yes
PPP	Directive - Plant Protection Products Directive	Yes
NIT	Directive - Nitrates Directive	Yes
IPC	Directive - Integrated Pollution Prevention Control Directive	Yes
CR	Other Stipulated Measure - Cost recovery for water use	Yes
SUS	Other Stipulated Measure - Promotion of efficient and sustainable water use	Yes
DWS	Other Stipulated Measure - Protection of drinking water sources	Yes
ABS	Other Stipulated Measure - Control of abstraction and impoundment	Yes
POI	Other Stipulated Measure - Control of point source discharges	Yes
DIF	Other Stipulated Measure - Control of diffuse source discharges	Yes
PS	Other Stipulated Measure - Control of priority substances	Yes
MOD	Other Stipulated Measure - Controls on physical modifications to surface waters	Yes
OA	Other Stipulated Measure - Controls on other activities impacting on water status	Yes
AP	Other Stipulated Measure - Prevention or reduction of the impact of accidental pollution incidents	Yes
TP1	WSIP - Agglomerations with treatment plants requiring capital works	No
TP2	WSIP - Agglomerations with treatment plants requiring further investigation prior to capital works	No
TP3	WSIP - Agglomerations requiring the implementation of actions identified in Shellfish PRPs	No
TP4	WSIP - Agglomerations with treatment plants requiring improved operational performance	No
TP5	WSIP - Agglomerations requiring investigation of CSOs	No



TP6	WSIP - Agglomerations where existing treatment capacity is currently adequate but predicted loadings would result in overloading	No
OTS	On-site waste water treatment systems	Yes
FPM	Freshwater Pearl Mussel sub-basin plan	No
SHE	Shellfish Pollution Reduction Plan	No
IPR	IPPC licences requiring review	No
WPR	Water Pollution Act licences requiring review	No
FOR	Forestry guidelines and regulations	Yes
CH1	Chanelisation measures	No
CH2	Chanelisation investigations	No
OG	Overgrazing measures	No
HQW	Protect high quality waters	No

Measures

Measures are necessary to ensure that we meet the objectives set out in the previous page of this report. Many measures are already provided for in national legislation and must be implemented. Other measures have been recently introduced or are under preparation. A range of additional potential measures are also being considered but require further development. Any agreed additional measures can be introduced through the update of Water Management Unit Action Plans during the implementation process.

You can read more about Basic Measures in 'River Basin Planning Guidance' and in other documents in our RBMP Document Library at www.wfdireland.ie.

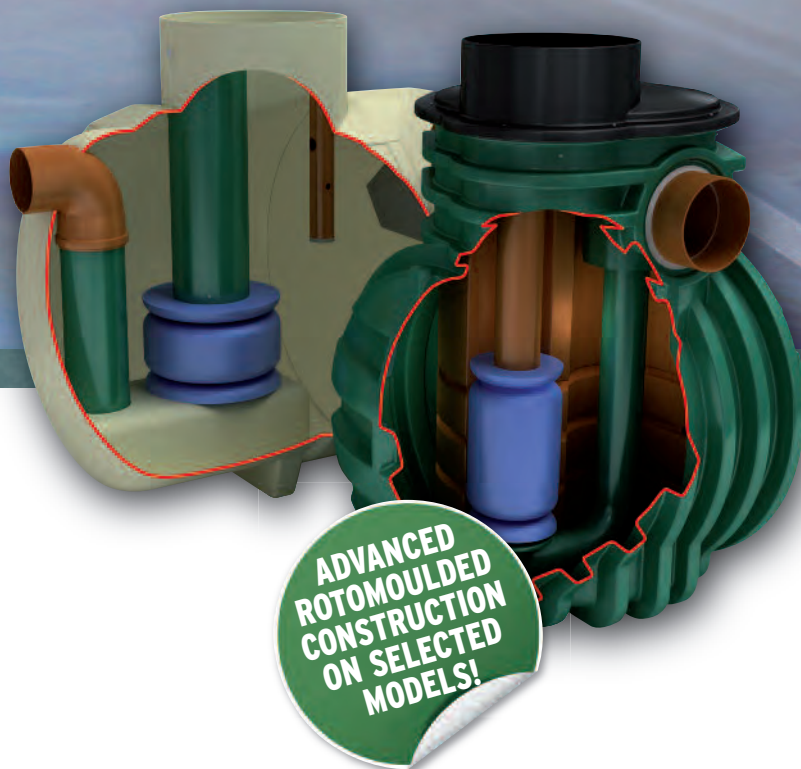
ATTACHMENT 6

Oil / Water Separator System Example

Kingspan *Klargester*

SEPARATORS

A RANGE OF FUEL/OIL
SEPARATORS FOR
PEACE OF MIND



Let us help!

Free professional
site visit with friendly
support and advice.

helpingyou@klargester.com

to make the right decision
or call **028 302 66799**


Kingspan
Environmental

Separators

A RANGE OF FUEL/OIL SEPARATORS FOR PEACE OF MIND

Surface water drains normally discharge to a watercourse or indirectly into underground waters (groundwater) via a soakaway. Contamination of surface water by oil, chemicals or suspended solids can cause these discharges to have a serious impact on the receiving water.

The Environment Regulators, Environment Agency, England and Wales, SEPA, Scottish Environmental Protection Agency in Scotland and Department of Environment & Heritage in Northern Ireland, have published guidance on surface water disposal, which offers a range of means of dealing with pollution both at source and at the point of discharge from site (so called 'end of pipe' treatment). These techniques are known as 'Sustainable Drainage Systems' (SuDS).

Where run-off is draining from relatively low risk areas such as car-parks and non-operational areas, a source control approach, such as permeable surfaces or infiltration trenches, may offer a suitable means of treatment, removing the need for a separator.

Oil separators are installed on surface water drainage systems to protect receiving waters from pollution by oil, which may be present due to minor leaks from vehicles and plant, from accidental spillage.

Effluent from industrial processes and vehicle washing should normally be discharged to the foul sewer (subject to the approval of the sewerage undertaker) for further treatment at a municipal treatment works.

SEPARATOR STANDARDS AND TYPES

A British (and European) standard (EN 858-1 and 858-2) for the design and use of prefabricated oil separators has been adopted. New prefabricated separators should comply with the standard.

SEPARATOR CLASSES

The standard refers to two 'classes' of separator, based on performance under standard test conditions.

CLASS I

Designed to achieve a concentration of less than 5mg/l of oil under standard test conditions, should be used when the separator is required to remove very small oil droplets.

CLASS II

Designed to achieve a concentration of less than 100mg/l oil under standard test conditions and are suitable for dealing with discharges where a lower quality requirement applies (for example where the effluent passes to foul sewer).

Both classes can be produced as full retention or bypass separators. The oil concentration limits of 5 mg/l and 100 mg/l are only applicable under standard test conditions. It should not be expected that separators will comply with these limits when operating under field conditions.

FULL RETENTION SEPARATORS

Full retention separators treat the full flow that can be delivered by the drainage system, which is normally equivalent to the flow generated by a rainfall intensity of 65mm/hr.

On large sites, some short term flooding may be an acceptable means of limiting the flow rate and hence the size of full retention systems.

Get in touch for a **FREE** professional site visit and a representative will contact you within 5 working days to arrange a visit.

helpingyou@klargester.com to make the right decision or call **028 302 66799**

BYPASS SEPARATORS

Bypass separators fully treat all flows generated by rainfall rates of up to 6.5mm/hr. This covers over 99% of all rainfall events. Flows above this rate are allowed to bypass the separator. These separators are used when it is considered an acceptable risk not to provide full treatment for high flows, for example where the risk of a large spillage and heavy rainfall occurring at the same time is small.

FORECOURT SEPARATORS

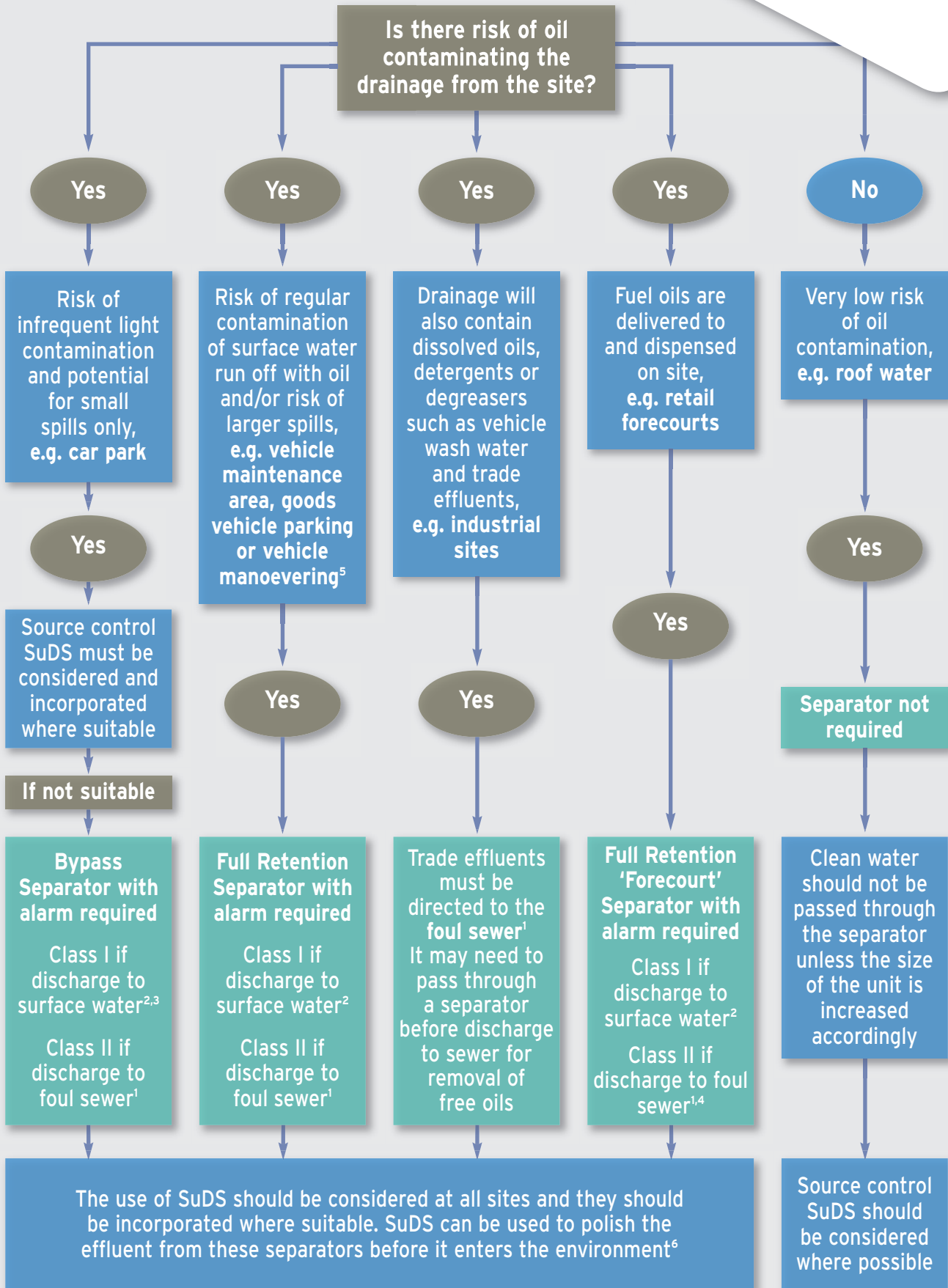
Forecourt separators are full retention separators specified to retain on site the maximum spillage likely to occur on a petrol filling station. They are required for both safety and environmental reasons and will treat spillages occurring during vehicle refuelling and road tanker delivery. The size of the separator is increased in order to retain the possible loss of the contents of one compartment of a road tanker, which may be up to 7,600 litres.

SELECTING THE RIGHT SEPARATOR

The chart on the following page gives guidance to aid selection of the appropriate type of fuel/oil separator for use in surface water drainage systems which discharge into rivers and soakaways.

For further detailed information, please consult the Environment Agency Pollution Prevention Guideline 03 (PPG 3) 'Use and design of oil separators in surface water drainage systems' available from their website.

Klargester has a specialist team who provide technical assistance in selecting the appropriate separator for your application.



1 You must seek prior permission from your local sewer provider before you decide which separator to install and before you make any discharge.

2 You must seek prior permission from the relevant environmental body before you decide which separator to install.

3 In this case, if it is considered that there is a low risk of pollution a source control SuDS scheme may be appropriate.

4 In certain circumstances, the sewer provider may require a Class 1 separator for discharges to sewer to prevent explosive atmospheres from being generated.

5 Drainage from higher risk areas such as vehicle maintenance yards and goods vehicle parking areas should be connected to foul sewer in preference to surface water.

6 In certain circumstances, a separator may be one of the devices used in the SuDS scheme. Ask us for advice.

Bypass NSB RANGE

APPLICATION

Bypass separators are used when it is considered an acceptable risk not to provide full treatment, for very high flows, and are used, for example, where the risk of a large spillage and heavy rainfall occurring at the same time is small, e.g.

- Surface car parks.
- Roadways.
- Lightly contaminated commercial areas.

PERFORMANCE

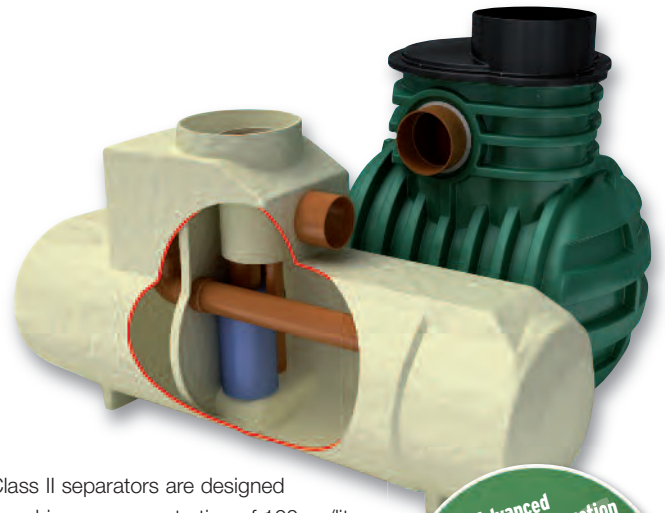
Klargester were one of the first UK manufacturers to have separators tested to EN 858-1. Klargester have now added the NSB bypass range to their portfolio of certified and tested models. The NSB number denotes the maximum flow at which the separator treats liquids. The British Standards Institute (BSI) tested the required range of Klargester full retention separators and certified their performance in relation to their flow and process performance assessing the effluent qualities to the requirements of EN 858-1. Klargester bypass separator designs follow the parameters determined during the testing of the required range of bypass separators.

Each bypass separator design includes the necessary volume requirements for:

- Oil separation capacity.
- Oil storage volume.
- Silt storage capacity.
- Coalescer.

The unit is designed to treat 10% of peak flow. The calculated drainage areas served by each separator are indicated according to the formula given by PPG3 $NSB = 0.0018A(m^2)$. Flows generated by higher rainfall rates will pass through part of the separator and bypass the main separation chamber.

Class I separators are designed to achieve a concentration of 5mg/litre of oil under standard test conditions.



Class II separators are designed to achieve a concentration of 100mg/litre of oil under standard test conditions.

Advanced rotomoulded construction on selected models

- Compact and robust
- Require less backfill
- Tough, lightweight and easy to handle

FEATURES

- Light and easy to install.
- Class I and Class II designs.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.
- Vent points within necks.
- Oil alarm system available (required by EN 858-1 and PPG3).
- Extension access shafts for deep inverts.
- Maintenance from ground level.
- GRP or rotomoulded construction (subject to model).

To specify a nominal size bypass separator, the following information is needed:-

- The calculated flow rate for the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the flow is not pumped .
- The required discharge standard. This will decide whether a Class I or Class II unit is required.
- The drain invert inlet depth.
- Pipework type, size and orientation.

SIZES AND SPECIFICATIONS

UNIT NOMINAL SIZE	FLOW (l/s)	PEAK FLOW RATE (l/s)	DRAINAGE AREA (m ²)	STORAGE CAPACITY (litres)		UNIT LENGTH (mm)	UNIT DIA. (mm)	ACCESS SHAFT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)	STANDARD FALL ACROSS (mm)	MIN. INLET INVERT (mm)	STANDARD PIPEWORK DIA. (mm)
				SILT	OIL								
NSBP003	3	30	1670	300	45	1700	1350	600	1420	1320	100	500	160
NSBP004	4.5	45	2500	450	60	1700	1350	600	1420	1320	100	500	160
NSBP006	6	60	3335	600	90	1700	1350	600	1420	1320	100	500	160
NSBE010	10	100	5560	1000	150	2069	1220	750	1450	1350	100	700	315
NSBE015	15	150	8335	1500	225	2947	1220	750	1450	1350	100	700	315
NSBE020	20	200	11111	2000	300	3893	1220	750	1450	1350	100	700	375
NSBE025	25	250	13890	2500	375	3575	1420	750	1680	1580	100	700	375
NSBE030	30	300	16670	3000	450	4265	1420	750	1680	1580	100	700	450
NSBE040	40	400	22222	4000	600	3230	1920	600	2185	2035	150	1000	500
NSBE050	50	500	27778	5000	750	3960	1920	600	2185	2035	150	1000	600
NSBE075	75	750	41667	7500	1125	5841	1920	600	2235	2035	200	950	675
NSBE100	100	1000	55556	10000	1500	7661	1920	600	2235	2035	200	950	750
NSBE125	125	1250	69444	12500	1875	9548	1920	600	2235	2035	200	950	750

■ Rotomoulded chamber construction

■ GRP chamber construction

* Some units have more than one access shaft – diameter of largest shown.

Full Retention NSF RANGE

APPLICATION

Full retention separators are used in high risk spillage areas such as:

- Fuel distribution depots.
- Vehicle workshops.
- Scrap Yards

PERFORMANCE

Klargester were the first UK manufacturer to have the required range (3-30 l/sec) certified to EN 858-1 in the UK. The NSF number denotes the flow at which the separator operates.

The British Standards Institute (BSI) have witnessed the performance tests of the required range of separators and have certified their performance, in relation to their flow and process performance to ensure that they met the effluent quality requirements of EN 858-1. Larger separator designs have been determined using the formulas extrapolated from the test range.

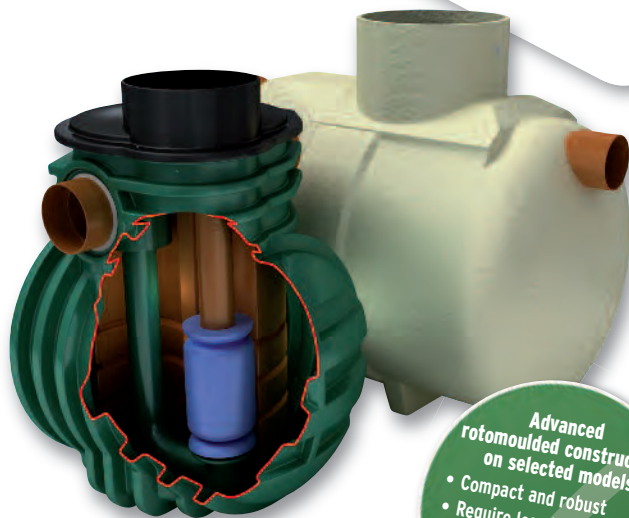
Each full retention separator design includes the necessary volume requirements for:

- Oil separation capacity.
- Oil storage volume.
- Silt storage capacity.
- Coalescer (Class I units only).
- Automatic closure device.

Klargester full retention separators treat the whole of the specified flow.

FEATURES

- Light and easy to install.
- Class I and Class II designs.
- 3-30 l/sec range independently tested and performance sampled, certified by the BSI.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.



- Oil alarm system available.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.
- GRP or rotomoulded construction (subject to model).

To specify a nominal size full retention separator, the following information is needed:-

- The calculated flow rate for the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the influent is not pumped.
- The required discharge standard. This will decide whether a Class I or Class II unit is required.
- The drain invert inlet depth.
- Pipework type, size and orientation.

SIZES AND SPECIFICATIONS

UNIT NOMINAL SIZE	FLOW (l/s)	DRAINAGE AREA (m ² PPG-3 (0.018))	STORAGE CAPACITY (litres)		UNIT LENGTH (mm)	UNIT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT	MIN. INLET INLET (mm)	STANDARD PIPEWORK DIA. (mm)
			SILT	OIL						
NSFP003	3	170	300	30	1700	1350	1420	1345	500	160
NSFP006	6	335	600	60	1700	1350	1420	1345	500	160
NSFA010	10	555	1000	100	2610	1225	1050	1000	500	200
NSFA015	15	835	1500	150	3910	1225	1050	1000	500	200
NSFA020	20	1115	2000	200	3200	2010	1810	1760	1000	315
NSFA030	30	1670	3000	300	3915	2010	1810	1760	1000	315
NSFA040	40	2225	4000	400	4640	2010	1810	1760	1000	315
NSFA050	50	2780	5000	500	5425	2010	1810	1760	1000	315
NSFA065	65	3610	6500	650	6850	2010	1810	1760	1000	315
NSFA080	80	4445	8000	800	5744	2820	2500	2450	1000	300
NSFA100	100	5560	10000	1000	6200	2820	2500	2450	1000	400
NSFA125	125	6945	12500	1250	7365	2820	2500	2450	1000	450
NSFA150	150	8335	15000	1500	8675	2820	2550	2450	1000	525
NSFA175	175	9725	17500	1750	9975	2820	2550	2450	1000	525
NSFA200	200	11110	20000	2000	11280	2820	2550	2450	1000	600

■ Rotomoulded chamber construction ■ GRP chamber construction

Washdown & Silt

APPLICATION

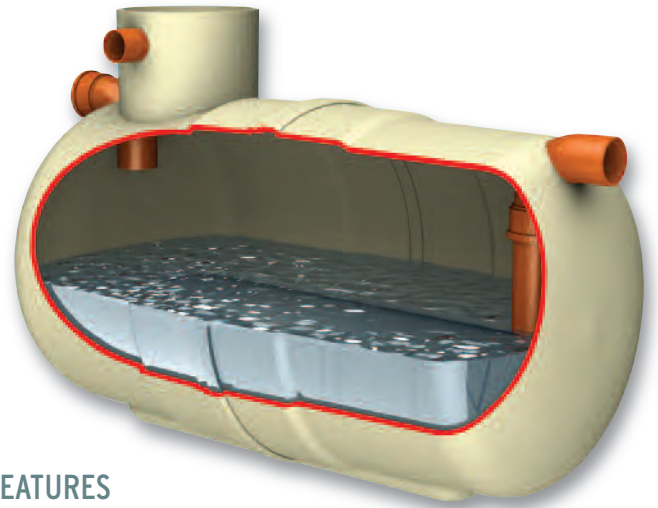
This unit can be used in areas such as car wash and other cleaning facilities that discharge directly into a foul drain, which feeds to a municipal treatment facility.

If emulsifiers are present the discharge must not be allowed to enter an NS Class I or Class II unit.

- Car wash.
- Tool hire depots.
- Truck cleansing.
- Construction compounds cleansing points.

PERFORMANCE

Such wash down facilities must not be allowed to discharge directly into surface water but must be directed to a foul connection leading to a municipal treatment works as they utilise emulsifiers, soaps and detergents, which can dissolve and disperse the oils.



FEATURES

- Light and easy to install.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.

SIZES AND SPECIFICATIONS

REF.	TOTAL CAPACITY (litres)	MAX. REC. SILT	MAX. FLOW RATE (l/s)	LENGTH (mm)	DIAMETER (mm)	ACCESS SHAFT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)	STANDARD FALL ACROSS UNIT (mm)	MIN. INLET INVERT (mm)	STANDARD PIPEWORK DIA. (mm)	APPROX EMPTY (kg)
W1/010	1000	500	3	1123	1225	460	1150	1100	50	500	160	60
W1/020	2000	1000	5	2074	1225	460	1150	1100	50	500	160	120
W1/030	3000	1500	8	2952	1225	460	1150	1100	50	500	160	150
W1/040	4000	2000	11	3898	1225	460	1150	1100	50	500	160	180
W1/060	6000	3000	16	4530	1440	600	1360	1310	50	500	160	320
W1/080	8000	4000	22	3200	2020	600	2005	1955	50	500	160	585
W1/100	10000	5000	27	3915	2020	600	2005	1955	50	500	160	680
W1/120	12000	6000	33	4640	2020	600	2005	1955	50	500	160	770
W1/150	15000	7500	41	5435	2075	600	1940	1890	50	500	160	965
W1/190	19000	9500	52	6865	2075	600	1940	1890	50	500	160	1200

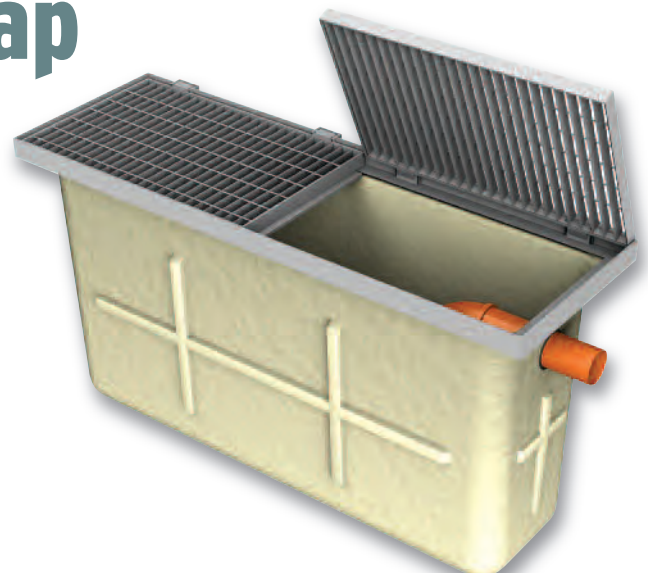
Car Wash Silt Trap

APPLICATION

Car Wash silt trap is designed for use before a separator in car wash applications to ensure effective silt removal.

FEATURES

- FACTA Class B covers.
- Light and easy to install.
- Maintenance from ground level.



Forecourt



APPLICATION

The forecourt separator is designed for installation in petrol filling station forecourts and similar applications. The function of the separator is to intercept hydrocarbon pollutants such as petroleum and oil and prevent their entry to the drainage system, thus protecting the environment against hydrocarbon contaminated surface water run-off and gross spillage.

PERFORMANCE

Operation ensures that the flow cannot exit the unit without first passing through the coalescer assembly.

In normal operation, the forecourt separator has sufficient capacity to provide storage for separated pollutants within the main chamber, but is also able to contain up to 7,600 litres of pollutant arising from the spillage of a fuel delivery tanker compartment on the petrol forecourt. The separator has been designed to ensure that oil cannot exit the separator in the event of a major spillage, subsequently the separator should be emptied immediately.

FEATURES

- Light and easy to install.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.

- Class I and Class II design.
- Oil storage volume.
- Coalescer (Class I unit only).
- Automatic closure device.
- Oil alarm system available.

INSTALLATION

The unit should be installed on a suitable concrete base slab and surrounded with concrete or pea gravel backfill. See sales drawing for installation.

If the separator is to be installed within a trafficked area, then a suitable cover slab must be designed to ensure that loads are not transmitted to the unit.

The separator should be installed and vented in accordance with Health and Safety Guidance Note HS(G)41 for filling stations, subject to Local Authority requirements.

SIZES AND SPECIFICATIONS

ENVIRORECEPTOR CLASS	TOTAL CAP. (litres)	DRAINAGE AREA (m ²)	MAX. FLOW RATE (l/s)	LENGTH (mm)	DIAMETER (mm)	ACCESS SHAFT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)	STD. FALL ACROSS UNIT (mm)	MIN. INLET INVERT (mm)	STD. PIPEWORK (mm)	EMPTY WEIGHT (kg)
I	10000	555	10	3963	1920	600	2110	2060	50	400	160	500
II	10000	555	10	3963	1920	600	2110	2060	50	400	160	500
I	10000	1110	20	3963	1920	600	2110	2060	50	400	200	500
II	10000	1110	20	3963	1920	600	2110	2060	50	400	200	500

Alarm Systems

British European Standard EN 858-1 and Environment Agency Pollution Prevention Guideline PPG3 requires that all separators are to be fitted with an oil level alarm system and that it should be installed and calibrated by a suitably qualified technician so that it will respond to an alarm condition when the separator requires emptying.

- Easily fitted to existing tanks.
- Excellent operational range.
- Visual and audible alarm.
- Additional telemetry option.



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