

Attachment H2

Waste Acceptance Procedure

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THIS PROCEDURE OUTLINES THE MEASURES TO BE TAKEN TO ENSURE THAT WASTE ACCEPTED FOR TREATMENT AT THE MATERIALS RECOVERY FACILITY COMPLIES WITH THE CONDITIONS OUTLINED IN THE WASTE PERMIT. IT IS THE RESPONSIBILITY OF THE PLANT SUPERVISOR TO ENSURE THAT THIS SPECIFICATION IS ADHERED TO AND THAT IT IS MAINTAINED AND UPDATED.

1.0 PURPOSE:

To ensure that waste handled at the recovery facility is suitable for disposal at the approved landfill sites and is in compliance with the waste licence permit.

2.0 POLICY

Killarney Waste Disposal Ltd recognises the requirement to ensure that waste handled at the facility is categorised as municipal or industrial waste and that no hazardous waste as specified in the Waste Management Act, 1996 is accepted at the facility.

3.0 SCOPE:

This procedure applies to the control of all waste handled at the materials recovery facility at Aughnacureen, Killarney, Co. Kerry.

4.0 DEFINITIONS:

Hazardous Waste is any waste which is covered by the Council Directive 91/689/EEC on Hazardous Waste. The Waste Management Act, 1996 defines it as;

- (i) hazardous waste for the time being mentioned in the list prepared pursuant to Article 1(4) of Council Directive 91/689/EEC of 12 December, 1991, being either
- (ii) Category 1 waste that has any of the properties specified in Part II of the second schedule, or
- (iii) Category II waste that-
 - Contains any of the constituents specified in part II of the second schedule and
 - Has any of the properties specified in Part III of the said schedule
- (iv) Such other waste, having any of the properties specified in Part III of the second schedule, as may be prescribed for the purposes of this definition.

5.0 RESPONSIBILITIES:

Specification Responsibility: Supervisor.

Waste compliance/categorisation Responsibility: Customer.

6.0 PROCEDURE:

6.1 Operations:

6.1.1 All waste handled at the facility will be characterised using the procedure outlined in Fig.1 – Procedure for characterising waste.

6.1.2 Waste from each individual customer will then be categorised as either municipal or industrial waste and appropriate European Waste Catalogue Codes assigned to the waste.

6.1.3 Each load of waste will be verified on site to confirm that the waste is the same as;

- (a) that which has been subjected to compliance testing; and
- (b) that which is described in any accompanying documents that may be required.

On-site inspection will consist of a visual inspection of a load of waste before and after unloading at the facility. More detailed testing may be required if visual inspection does not enable the operator to make a conclusive verification.

6.1.4 A Municipal Waste characterisation survey will be carried out periodically.

6.1.5 Waste arriving on site will be checked as follows:

6.1.5.1 Documentation check to ascertain origin and nature of the waste.

6.1.5.2 Visual inspection as outlined above

6.1.5.3 Periodic compliance testing if required

6.1.5.4 Disposal in accordance with the waste permit.

6.2 Inspections:

6.2.1 Visual and documentation inspections shall be carried out on each load received at the facility.

6.2.2 Other more detailed inspections will be carried out in accordance with permit requirements.

6.3 Reporting:

- 6.3.1 Any waste not in conformance with the permit conditions will be held on site and Kerry County Council informed.
- 6.5.2 A senior member of staff to compile a special in depth report outlining the possible source and composition of such unapproved waste.
- 6.5.3 A disposal strategy for such waste will be agreed with Kerry County Council prior to disposal.

6.4 Communication:

- 6.4.1 All reports/documentation will be kept in the facility.
- 6.4.2 Kerry County Council will be informed of any proposed changes to this waste acceptance procedure.

6.8 Training:

- 6.8.1 Personnel involved in waste acceptance must have attended a training course on the implementation of this procedure.

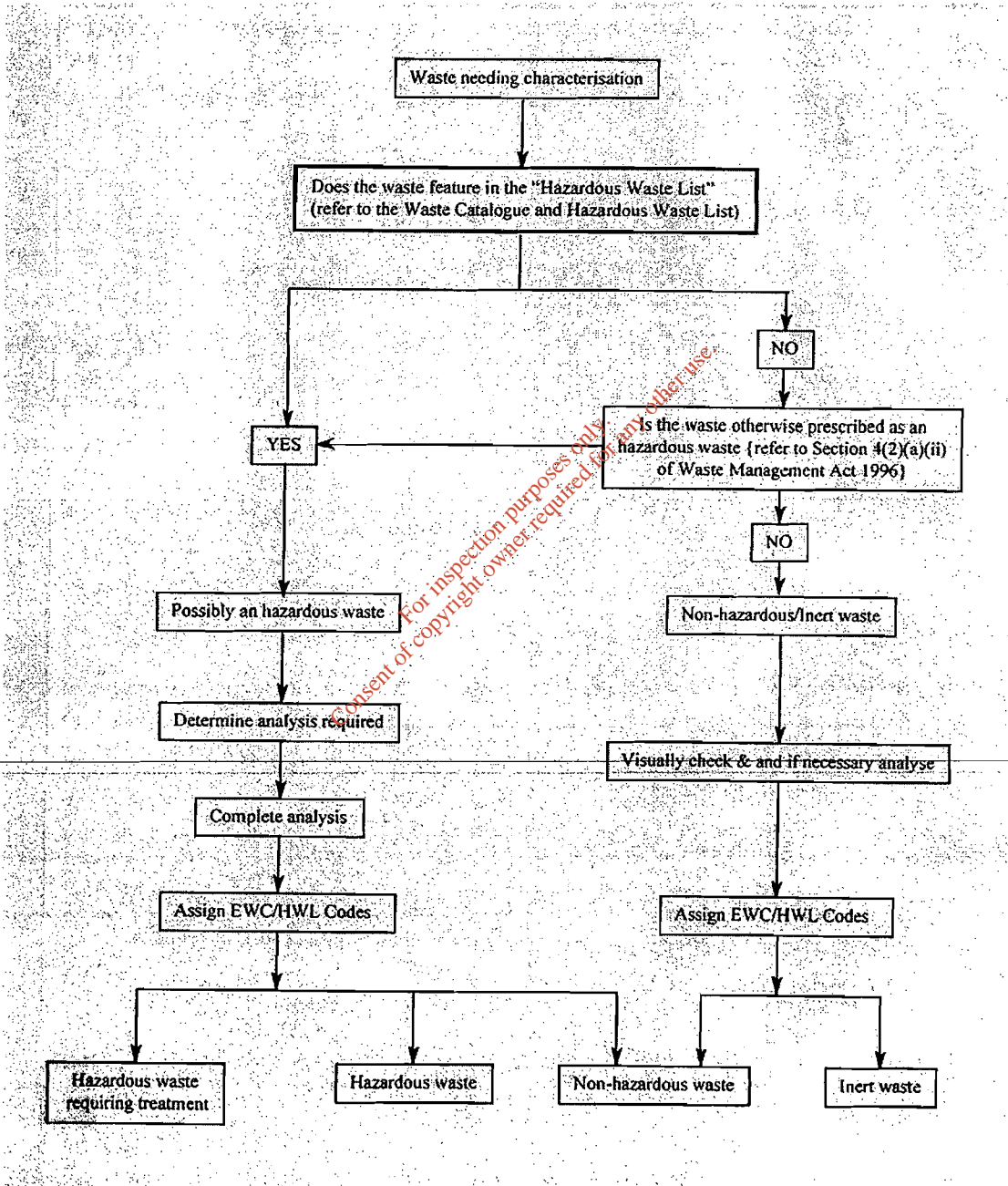
6.9 Administration:

The activity file for this procedure shall reside in the office. Compliance with the procedures shall be confirmed through the presence of documentation for scheduled treatment inspections.

7.0 RELATED DOCUMENTS:

- 7.1 Waste permit
- 7.2 Landfill manuals "waste acceptance", EPA
- 7.3 Waste Management Act, 1996

Fig. 1 Procedure for characterising waste



Waste Acceptance Report

Date:

Customer:

Item	Checked	Comments
Waste Description		
Documentation		
Visual inspection		
Odour		

Report on Waste Acceptance Problem

Location: _____

Time: _____

Details: _____

Corrective action taken: _____

Signed: _____

Approved: _____

Batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries	20 01 33*
Batteries and accumulators other than those mentioned in 20 01 33	20 01 34
Discharged electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	20 01 35*
Discharged electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	20 01 36
Wood other than that mentioned in 20 01 37	20 01 38
Plastics	20 01 39
Metals	20 01 40
Other fractions not otherwise specified	20 01 99
Biodegradable waste	20 02 01
Soil and stones	20 02 02
Other biodegradable wastes	20 02 03
Mixed municipal waste	20 03 01
Street cleaning residues	20 03 03
Bulky waste	20 03 07
Municipal waste not otherwise specified	20 03 99

H.2 Waste Acceptance Procedures

Procedures for checking waste loads as they arrive at the facility must be included. These should follow the requirements of the Agency's Waste Acceptance Manual. A copy of these procedures and other associated documentation should be included as **Attachment H.2**.

H.3 Waste Handling

Waste handling and the operating procedures used at the facility including waste treatment processes should be described in **Attachment H.3**. Included in the attachment should be information on the plant used on site and on the methods and processes for handling waste on-site. Special requirements hold for contaminated soil facilities, see *Guidance Note*.

In addition, an application for a Landfill requires Section H.3.a to be completed:

H.3a Waste Handling at the Landfill Facility

State whether all waste will be subject to treatment prior to landfilling. Provide information as to the quantities of biodegradable municipal waste and how the targets of the Landfill Directive (1999/31/EC) relating to that waste type are to be achieved. In particular describe how the following will be achieved:

- (a) a reduction by 16/07/06 to 75% by weight of the total amount of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardised Eurostat data is available;

- (b) a reduction by 16/07/09 to 50% by weight of the total amount of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardised Eurostat data is available;
- (c) a reduction by 16/07/16 to 35% by weight of the total amount of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardised Eurostat data is available;
- (d) Evidence should be provided to show that energy will be used efficiently.

H.4 Waste Arisings

Waste Arisings should be considered for all contaminated soil applications. Details of all waste materials generated on the site including, name, description and nature as well as the source(s) should be identified. The quantities of each type of waste generated on an annual/monthly basis should be calculated and stated in Tables H.1(i) and H. 1(ii) of the application form. Applicants should also provide conversion factors used to relate volume (m³) and tonnage (t) for their waste stream.

SECTION I EXISTING ENVIRONMENT & IMPACT OF THE FACILITY

Detailed information is required to enable the Agency to assess the existing environment. This section requires the provision of information on the ambient environmental conditions at the site prior to the commencement of waste management activities or prior to the receipt of a review application.

Where development is proposed to be carried out, being development which is of a class for the time being specified under Article 24 (First Schedule) of the Environmental Impact Assessment Regulations, the information on the state of the existing environment should be addressed in the EIS. **In such cases, it will suffice for the purposes of this section to provide adequate cross-references to the relevant sections in the EIS.**

I.1. Assessment of atmospheric emissions

Describe the existing environment in terms of air quality with particular reference to ambient air quality standards.

Provide a statement whether or not emissions of main polluting substances (as defined in the Schedule of S.I. 394 of 2004) to the atmosphere are likely to impair the environment.

Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.



WASTE Application Form

Attachment I.1 should also contain full details of any dispersion modelling of atmospheric emissions from the activity, where required.

I.2. Assessment of Impact on Receiving Surface Water

Describe the existing environment in terms of water quality with particular reference to environmental quality standards or other legislative standards. Table I.2(i) should be completed

Provide a statement whether or not emissions of main polluting substances (as defined in the Schedule of S.I. 394 of 2004) to water are likely to impair the environment.

Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.

Full details of the assessment and any other relevant information on the receiving environment should be submitted as **Attachment I.2.**

I.3. Assessment of Impact of Sewage Discharge.

Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.

Full details of the assessment and any other supporting information should form **Attachment I.3.**

I.4 Assessment of impact of ground/groundwater emissions

The scope and detail of this assessment will depend to a large extent on the extent and type of ground emissions at any site, which in turn are related to the risk. Details should be included in **Attachment I.4.** Comprehensive guidelines are contained in the *Application Guidance Note*, and include particular requirements for landfill and brownfield facilities.

Describe the existing groundwater quality. Tables I.4(i) should be completed.

I.5 Ground and/or groundwater contamination

Summary details of known ground and/or groundwater contamination, historical or current, on or under the site must be given.

Full details including all relevant investigative studies, assessments, or reports, monitoring results, location and design of monitoring installations, appropriately scaled plans/drawings ($\leq A3$), documentation, including containment engineering, remedial works, and any other supporting information should be included in **Attachment I.5.**

I.6 Noise Impact.

Give details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.

Ambient noise measurements

Complete Table I.6(i) in relation to the information required below:

- (i) State the maximum Sound Pressure Levels which will be experienced at typical points on the boundary of the operation. (State sampling interval and duration)
- (ii) State the maximum Sound Pressure Levels which will be experienced at typical noise sensitive locations, outside the boundary of the operation.
- (iii) Give details of the background noise levels experienced at the site in the absence of noise from this operation.

Prediction models, appropriately scaled maps ($\leq A3$), diagrams and supporting documents, including details of noise attenuation and noise proposed control measures to be employed, should form **Attachment I.6**.

I.7 Assessment of Ecological Impacts & Mitigation Measures

The ecology of the site and the surrounding area should be assessed in the vicinity of the largescale waste facilities such as landfill or incinerator developments. An assessment of the ecology should form **Attachment I.7**. Comprehensive guidelines are contained in the *Application Guidance Note*

Attachment I

I.1 Assessment of Atmospheric Emissions

Dust Emissions

Dust emissions will be generated from the processing and storage of C&D waste and timber. Dust will also be generated from traffic travelling to and from the facility. Dust emissions associated with timber shredding is minimised as the timber shredder is housed on three sides. It is unlikely that the emission limit of 350 mg/m²/day for total dust deposition will be exceeded and the annual monitoring required under the waste licence will confirm this.

The measures to control and reduce dust emissions at the facility include the following:

- Regular sweeping of the facility with the automatic sweeper controls the amount of dust generated.
- The surrounding trees attenuate the dust generated from the facility.
- A mobile water sprayer is employed during dry weather conditions to reduce dust emissions.
- Plant equipment used on site is regularly maintained to prevent excessive exhaust emissions of particulates and other pollutants.
- The timber shredder is housed on three sides to reduce dust being emitted into the atmosphere.
- Regular dust monitoring will indicate if the levels are exceeding the standard emission limits.

Dust monitoring was carried out by OES Consulting in April, July and December 2009. **Table 1.1** below presents these results. The standard emission limit of 350 mg/m²/day for total dust deposition was exceeded on one occasion at D1 in July 2009. However this exceedance was attributed to leaves falling into the sampling container. The locations of the dust monitoring points are shown in Drawing No. DG0035-01 Detailed Site Layout Plan. From these results it is shown that the facility is not having a negative impact on the surrounding air quality.

Table 1.1: Dust Deposition Results at Killarney Waste Disposal

Dust Monitoring Point	April 2009 mg/m ² /day	July 2009 mg/m ² /day	Dec 2009 mg/m ² /day
D1 Front Gate	279	600	226
D2 Back of Shed	50	143	207
D3 Back Road	46	201	288
Emission Limit Value	350	350	350

Odour Emissions

The processing of mixed municipal waste and the acceptance of segregated organic waste has the potential to emit odour. The potential for odour emissions is minimised by a series of work practices and mitigation measures at the facility.

These measures are outlined briefly below:

- All organic and mixed municipal waste is processed indoors and this significantly reduces any odour emissions from the waste.
- All work surfaces and floors cleaned and regularly maintained to a suitable standard to prevent the build up of anaerobic bacteria. All areas where there is a potential for the generation of odour (i.e. temporary storage areas, skips, bins, etc) covered to reduce the potential for escape of odours.
- Residence time for waste, even non-odorous waste, will be kept to a minimum before transfer.
- In the event that an odour nuisance is occurring from the facility, despite the building design and work practices, there are a number of odour mitigation measures that may be employed. The main mitigation measure will be the use of a masking agent, which is a chemical component in an open-air spray specifically designed to mix with the fugitive odour. These masking agents typically have pleasant odours designed to “mask” the unpleasant odour from the facility. Alternatively, a counteractant may be employed, by a similar process to masking agents. Counteractants are designed to “interfere” with the odour molecules by a chemical or physical reaction and reduce their odour intensity.

I.2 Assessment of Impact on Receiving Surface Water

The Aquatic Ecology Assessment completed by Conservation Services in Appendix F of the EIS for the original Waste Licence Application which is contained in Attachment B3 should be referred to for details.

Process Effluent

The processing of mixed municipal waste produces a liquid effluent. The MRF building has an effluent holding tank in the centre of the building. This precast concrete holding tank is 6,920 litres (1,500 gallons) in capacity and is lined with a 2.5mm thick HDPE liner. A bunding tank which surrounds the holding tank has a capacity of 13,250 litres (3,500 gallons). Approximately 34,600 litres (7,500 gallons) of effluent is transported by tanker to Tralee WWTP (5 no. loads of 6,920 litres) for treatment per annum. Drawing No. DG0035-01 Detailed Site Layout Plan shows the location of the effluent holding tank inside the MRF Building which is analysed on an annual basis (SE1). The process effluent is contained within the MRF building and so is not impacting on surface water at the facility.

Stormwater/Surface Water Drainage

(i) Roof

Roof water drainage from the MRF building is directed away from the concreted yard and stormwater collection/treatment system. Drawing No. DG0035-01 Detailed Site Layout Plan shows the emission/monitoring point locations R1 and R2 for roof water runoff.

Sampling and analysis of roof water runoff was carried out in 2009 by OES Consulting in accordance with waste licence requirements. **Table 1.2** shows these results. The runoff water is below the standard emission levels for all parameters except for a very slight elevated level of ammonia in R2. Therefore it can be shown that there is no negative impact on the surrounding surface water quality.

Table 1.2 Monitoring Results for Roof Water Runoff

Parameter	Monitoring Locations		Standard Emission Level ¹	Unit
	R1	R2		
pH	6.1	6.4	5.5 - 8.5	-
Conductivity	19.8	27.9	1,000	µS/cm
Suspended Solids	2	2	25 ²	mg/l
Total Ammonia	0.09	0.70	0.2	mg/l as NH ₄ ⁺ -N
Sulphate	1.74	1.86	200	mg/l
Chloride	4.27	5.25	250	mg/l
Cadmium	<0.001	<0.001	0.005	mg/l
Chromium	<0.001	<0.001	0.05	mg/l
Copper	<0.010	<0.010	0.05	mg/l
Lead	0.001	0.001	0.05	mg/l
Nickel	<0.001	<0.001	-	mg/l
Tin	<0.010	<0.010	-	mg/l
Mercury	<0.001	<0.001	0.001	mg/l
Arsenic	<0.001	<0.001	0.05	mg/l

¹Surface Water Regulations 1989 A1 unless otherwise specified
²Salmonid Regulations

(ii) Concreted Yard Area

Runoff from the yard area drains to 2 no. holding tanks from where it is pumped to the oil/water separator and then on to the aeration pond, settling pond, constructed wetland and percolation ditch. The discharge point (SW1) from the constructed wetland to the percolation ditch is monitored to ensure that the stormwater is uncontaminated. The final discharge is to surface water. It has been calculated that the total surface water runoff for the site is 12.8m³/day.

WASTE Application Form

A Surface Water Collection System Assessment Report was completed by RPS in December 2008 and is included in Attachment D.1.k. In Section 3.1 of this Report regular monitoring of the oil/water separator (nearest point at which the stormwater leaves the site), lagoon (now the settling pond) and SW1 carried out in 2008 showed that there was elevated levels of ammonia in the stormwater leaving the site. Over the sampling period an average level of 1.22 mg/l for ammonia was measured at SW1. Mitigation measures were recommended to reduce the level of ammonia in the stormwater runoff which have been implemented on site are as follows:

- Installation of gates on the bays of the C&D waste processing area to prevent the migration of waste out onto the yard area,
- Inspection of incoming timber waste to ensure that no organic waste is contained in the stockpiles,
- Inspection of all storage bins and skips on site for leakages and their immediate replacement and repair,
- Regular cleaning of the yard with the automatic sweeper on a daily basis,
- Regular cleaning of the holding tanks, oil/water separator and settling pond (holding tanks and oil/water separator every 2 months or as required ; the settling pond every 6 months or as required), and
- Upgrading of the stormwater collection/treatment system to include for an aeration pond, settling pond and replacement and refilling of the first section of the constructed wetland.

Water quality sampling results taken upstream and downstream of the stream (sampling locations Sites B & D) bordering the site for 2008 are shown in Appendix B of the Surface Water Collection System Assessment Report in Attachment D.1.k. From the results at site D, which is located downstream of the facility, it is shown that all parameters were within the standard emission limit values.

In 2009 SW1 was sampled and analysed on a weekly basis and an average of 0.21mg/l was measured for ammonia which was well below the levels being reported in 2008. The water quality sampling results taken in the stream bordering the site for November 2009 are shown in **Table 1.3**. All of the parameters are within the standard emission limit values.

Table 1.3: Ambient Water Quality Results for 2009

Dust Monitoring Point	Site B Upstream	Site D Downstream	Standard Emission Level ¹
pH	7.3	7.1	5.5 - 8.5
Conductivity $\mu\text{S/cm}$	199	211	1,000
Total Ammonia mg/l	0.02	0.02	0.2
¹ Surface Water Regulations 1989 A1 unless otherwise specified			

Therefore the stormwater discharge from the site is not having a negative impact on the surface water quality. Drawing No. DG0035-01 Detailed Site Layout Plan shows the layout of the stormwater collection/treatment system and the emission/monitoring point locations for SW1 and ambient surface water quality monitoring points (Sites B & D).

Depollution of ELV's

It is proposed to store and treat ELV's within the MRF building on an impermeable surface in a separately bunded area with drain and sump. This will ensure that any leaks or spillages will be controlled and collected and sent to a licensed facility for treatment. In addition, during the depollution process following drainage of fluids, plastic plugs will be inserted in all drain holes to prevent dripping occurring. A spill procedure and spill kits are in place on site to deal with potential spillages. All components and fluids will be contained in suitable separate storage tanks and containers within the bunded area and sent to licensed facilities for recovery/disposal.

I.3 Assessment of Impact of Sewage Discharge

A septic tank is in use at the facility with a puraflo unit and associated percolation area. The system has been designed to cater for 12 people at 180L per person per day, which equates to a discharge quantity of 2.16 cubic metres per day to be treated by the system. The Puraflo unit and associated percolation area has been designed, located, constructed and maintained in accordance with the manufacturer's instructions. An assessment from Bord na Móna on the design of the Puraflo system is shown in Attachment D.1.k. The design of the domestic effluent system is in line with the requirements of EPA Wastewater Treatment Manual and sewage generated at the facility will not have an adverse impact on the environment.

I.4 Assessment of Impact of Ground/Groundwater Emissions

The Geology/Hydrogeology Assessment in Appendix A of the EIS for the original Waste Licence Application which is contained in Attachment B3 should be referred to for details on the potential impacts of groundwater.

There are no direct groundwater emissions from the facility. The design of the domestic effluent system is in line with the requirements of EPA Wastewater Treatment Manuals therefore sewage generated at the facility will not have an adverse impact on the environment. Process effluent is collected in a holding tank before being sent to Tralee WWTP for treatment. This holding tank passed a bund integrity test in March 2009. This shows that no leachate is being released into the environment. Control measures are in place for depollution of ELV's as outlined in

section I.2. Stormwater is collected and treated on site and discharged to surface water. In July 2009, 4 no. groundwater monitoring boreholes were installed at the facility. The location of the groundwater monitoring points are shown in Drawing No. DG0035-01 Detailed Site Layout Plan. GW1 and GW2 are located downgradient and GW3 and GW4 are located upgradient of the facility. A hydrogeological survey and groundwater monitoring was undertaken by OES Consulting and details are provided in the “Report on Hydrogeological Survey, June 2010” included in this Attachment. All the parameters are within the Drinking Water Standards except for ammonia levels in three of the groundwater boreholes (GW1/MW1; GW2/MW2; and GW3/MW3). It is shown that groundwater flow is in a southwest to northeast direction. Elevated levels of ammonia present in an upgradient borehole indicates that other sources of contamination unrelated to the KWD facility are likely to be responsible.

I.6 Assessment of Ecological Impacts & Mitigation Measures

The Terrestrial Ecology Assessment completed by Roger Goodwillie & Associates in Appendix E of the EIS for the original Waste Licence Application which is contained in Attachment B3 should be referred to for details on potential ecological impacts and mitigation measures.

I.7 Assessment of Noise Impact

Noise emissions are generated from traffic using the adjacent road network, traffic movements on site and noise from operations on site. However the impacts of these emissions are reduced significantly as most operations take place indoors in the MRF building. Processing of timber waste occurs outdoors. This operation takes place on an intermittent basis and the timber shredder is housed on three sides to reduce noise emissions. The monitoring programme for noise will ensure that standard emissions limits are not exceeded.

A noise survey was carried out by OES Consulting in 2009 in accordance with the conditions of the waste licence. The results are shown in **Table 1.4** and it is shown that the levels measured are below the EPA standard emission levels and are unlikely to give rise to any nuisance. In conclusion the results indicate that there is no significant impact with regard to noise outside the boundary of the site. The location of the noise monitoring points are shown in Drawing No. DG0035-01 Detailed Site Layout Plan.

Table 1.4: Noise Monitoring Results at Killarney Waste Disposal

Monitoring Points	Daytime (2009)	Standard Emission Level L_{Aeq}	Nighttime (2009)	Standard Emission Level L_{Aeq}
	L_{Aeq}	55 dB (A)	L_{Aeq}	45 dB (A)
NSL1	50.1		37.3	
NSL2	44.4		40.6	
NSL3	49.1		35.2	
NSL4	48.2		33.8	

Report on Hydrogeological Survey

June 2010.

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Energy, Environment & Safety



Killarney Waste Disposal

Aughacureen, Killarney, Co Kerry
Waste Licence No. W0217-01



Report on Hydrogeological Survey

June 2010



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Killarney Waste Disposal

Hydrogeological Survey

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Attachments

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1. Introduction

OES were commissioned by Killarney Waste Disposal Ltd (KWD) to undertake a hydrogeological assessment of their facility at Aughacureen to determine if contaminating substances exist in groundwater as a result of site activities.

The overall objective of this assessment is to develop a valid hydrogeological conceptual model so that an effective groundwater monitoring programme can be developed for the site to the satisfaction of the Agency.

Killarney Waste Disposal (KWD) has operated a Material Recovery Facility (MRF) on a 2.2 hectare site at Aughacureen, approximately 4 km northwest of Killarney Town since 1987. The MRF is situated on a rural site and there is no significant residential or commercial development in its proximity; the primary landuse of the surrounding locale is agricultural with some of the land now being used for commercial forestry, some of which has recently been clear felled.

Under Condition 3.21 of Waste Licence W0217-01 the Agency required KWD to submit a proposal for the installation of groundwater monitoring boreholes at the site. OES submitted this proposal to the Agency on behalf of KWD in April 2008.

This report sets out the findings of the hydrogeological assessment as agreed by the Agency.

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2. Local Hydrogeology

Owing to the difficulty involved in obtaining an accurate reflection of groundwater regime it was necessary to undertake a review of geology and hydrogeology in the area surrounding KWD to augment the findings of the field investigations undertaken at the site.

It was found that the underlying aquifer which KWD is situated in has been classified as an LI (locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones) and the GSI Classification for this bedrock aquifer unit indicates it is capable of supplying locally important abstractions (e.g. smaller public water supplies, group schemes). Groundwater flow occurs predominantly through fractures, fissures and joints.

Primary permeability and porosity are no longer present in these formations and secondary permeability is dominant. Obtaining a good yield from these formations is dependent on intercepting major fracture zones and the interconnectivity of these fracture zones.

A GSI well search was undertaken to investigate if there was any domestic or public drinking groundwater sources in the vicinity of the site.

The search yielded results on fifteen (15) wells, these are presented in Table 3 below.

Table 3 Summary of the well details provided by the GSI

Townland	Depth to rock	Depth	Easting	Northing	Location Accuracy	Usage	Yield m ³ d
Nunstown	15.2	61	93890	92790	to 1km	Domestic use only	21.8
Knockasarinet	30.5	35.7	95000	93810	to 1km	Agri & domestic use	21.8
Knockasarinet	30.5	35.4	95000	93760	to 1km	Agri & domestic use	21.8
Scarteen	30.5	36.6	95410	94800	to 1km	Agri & domestic use	21.8
Sheans	0.6	3.1	93320	95620	to 1km	Agri & domestic use	21.8
Barleymount	30.5	36.6	92000	95000	to 1km	Agri & domestic use	21.8
Barleymount east	30.5	32.6	92460	95060	to 500m	Domestic use only	21.8
Gortnacarriga	6.1	36.6	96100	95600	to 500m	Agri & domestic use	26.2

Townland	Depth to rock	Depth	Easting	Northing	Location Accuracy	Usage	Yield m ³ d
Derreen	3.1	28.3	96400	92160	to 500m	Agri & domestic use	21.8
Lackabane			93370	91470	to 200m	Industrial use	350
Lackabane	39	91	93300	91750	to 100m	Industrial use	9
Lackabane	39	91	93300	91750	to 100m	Unknown	7

The nearest groundwater well to the site is greater than 1km up gradient with the nearest down gradient well greater than 2.7km north of the site.

Each of the monitoring boreholes installed at KWD are described in section 3 of this report.

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3. Installation of Monitoring Boreholes

KWD engaged the services of Southern Pumps Ltd to install monitoring boreholes at their facility in early July 2009. In total four wells were constructed at locations agreed with the Agency. A map detailing the locations of each of the monitoring boreholes installed at the site is appended with this report as figure 2 in Attachment A.

Each of the borehole monitoring wells was levelled to site datum so that groundwater flow direction could be obtained. A summary of each of the wells is presented in following sections of this report.

3.1 Monitoring Well 1 (MW1)

MW 1, as can be seen in Figure 2 (Attachment A) is positioned down gradient of the MWF. This well was constructed with the use of an air rotary rig. A summary of the drilling and well installation is outlined below. A schematic log of this monitoring well is appended with this document as Figure 4 of Attachment A.

Drilling

- Drilling was initiated using a 140 millimetre hole, this was continued to a depth of 7.5 metres;
- Overburden was found to be topsoil from 0 to 0.5 metres with subsoil encountered from 0.5 to 5 metres;
- Soft black shale was encountered from 5 to 7.5 metres.
- Drilling continued to 18 metres below ground surface at a hole diameter of 120 millimetres.

Well Installation

- 10.5 metres of slotted 50 millimetre uPVC casing was installed from 7.5 metres to 18 metres;
- A gravel filter pack was installed in the annular space between the uPVC screen from 7.5m to 18 m below ground level;
- Bentonite seal was installed from 7.5m to ground level to seal the monitoring well from surface water intrusion;
- Raised headwork's were installed at this well to provide well security and groundwater protection of the well and
- A concrete plinth was placed around the top of the well for further groundwater protection.

In terms of the geological sequences encountered, the shale encountered between 5.0 and 7.5 metres was found to be a very fine black powder and slightly weathered and finely laminated.

During drilling, water strikes were recorded at 10 and 15 metres, while the well demonstrated artesian characteristics on the day of drilling.

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3.2 Monitoring Well 2 (MW2)

MW2, as can be seen in Figure 2 (Attachment A) is positioned down gradient of the MWF. This well was constructed with the use of an air rotary rig. A summary of the drilling and well installation is outlined below. A schematic of this monitoring well is appended with this document as Figure 5 of Attachment A.

Drilling

- Drilling was initiated using a 150 millimetre hole, this was continued to a depth of 6 metres;
- Overburden was found to be topsoil from 0 to 1 metres with bedrock (black shale) encountered from 1 to 3 metres;
- Steel casing from 0 to 6 metres was installed to stop the hole from caving in;
- Drilling continued to 24metres below ground surface at hole diameter of 120 millimetres..

Well Installation

- Slotted uPVC casing was installed from 6 to 24 metres;
- A gravel filter pack was installed in the annular space between the uPVC screen from 6m to 24m below ground level;
- Bentonite seal was installed from 6m to ground level to seal the monitoring well from surface water intrusion;
- Raised headwork's were installed at the at this well to provide security and protection of the well; and
- A concrete plinth was placed around the top of the well for further groundwater protection.

Whilst the well was being drilled, a minor water strike was encountered at 20 metres below ground level. Similar to MW 1 the drill cuttings were reported as being fine black powder which would indicate that the shale was weathered.

3.3 Monitoring Well 3 (MW3)

MW3, as can be seen in Figure 2 (Attachment A) is positioned up gradient of the MWF. This well was constructed with the use of an air rotary rig. A summary of the drilling and well installation is outlined below. A schematic of this monitoring well is appended with this document as Figure 6 of Attachment A.

Drilling

- The monitoring borehole drilling was initiated using a 140 millimetre hole, this was continued to a depth of 6 metres;
- Overburden of topsoil and subsoil was encountered from 0 to 5 metres.

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- Soft weathered black shale was encountered from 5 to 8 metres and 6 metres of steel casing was inserted from 0 to 6 metres to stop the borehole from caving in;
- Drilling continued to 18metres below ground surface at a hole diameter of 120 millimetres.

Well Installation

- 50 millimetre uPVC casing was installed from 0 metres to 7.5 metres below ground level;
- A gravel filter pack was installed around the uPVC from 6 to 18 metres;
- A Bentonite seal was installed from 6m to ground level to seal the monitoring well from surface water intrusion;
- Raised headwork's were installed at the at this well to provide security and protection of the well; and
- A concrete plinth was placed around the top of the well for further groundwater protection.

A minor water strike was encountered at 11m below ground level. Once the steel screen was installed in the upper 6 metres of the borehole the hole remained open for the duration of drilling.

3.4 Monitoring Well 4 (MW4)

MW4, as can be seen in Figure 2 (Attachment A) is positioned up gradient of the MWF. This well was constructed with the use of an air rotary rig. A summary of the drilling and well installation is outlined below. A schematic of this monitoring well is appended with this document as Figure 6 of Attachment A.

Drilling

- The monitoring borehole drilling was initiated using a 140 millimetre hole, this was continued to a depth of 6 metres;
- Overburden of topsoil and clay was encountered from 0 to 3 metres.
- Soft weathered black shale was encountered from 3 to 8 metres and 6 metres of steel casing was inserted from 0 to 6 metres to stop the borehole from caving in;
- Drilling continued to 18metres below ground surface at a hole diameter of 120 millimetres.

Well Installation

- 50 millimetre uPVC casing was installed from 6 metres to 18 metres below ground level;
- A gravel filter pack was installed in the annular space between the uPVC screen from 6m to 18m below ground level;
- A Bentonite seal was installed from 6m to ground level to seal the monitoring well from surface water intrusion;

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- Raised headwork's were installed at the at this well to provide security and protection of the well; and
- A concrete plinth was placed around the top of the well for further groundwater protection.

Similarly to MW3 a water strike was detected at 11 metres.

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4. Water Quality

OES undertook groundwater monitoring at KWD on the 25th of November 2009. Water samples were taken from the four groundwater monitoring wells at the site and were analysed for the parameters set out in Schedule C of licence W0217-01. The parameters required to be analysed and the frequency for analysis is presented in table 1 below.

Table 1 Groundwater monitoring parameters

Parameter	Monitoring frequency	Analysis method/Technique
Total Ammonia (as N)	Biannually	Standard method
Nitrates (as N)	Biannually	Standard method
Conductivity	Biannually	Standard method
Chloride	Biannually	Standard method
Sulphates	Biannually	Standard method
Diesel range organics	Biannually	To be agreed by agency

4.1 Methodology

Sampling of the groundwater monitoring wells at KWD was undertaken by a Hydrogeologist from OES.

Separate tubing was used in each well to prevent cross contamination during sampling. Each of the groundwater monitoring wells was purged by at least 5 times its water volume; samples were taken when the electrical conductivity readings and pH of the groundwater stabilised to ensure that the sample was representative of groundwater in the area.

The water samples were preserved where necessary and sent to Alcontrol Laboratories in Dublin for analysis.

The results of analysis from the four Monitoring wells were interpreted with reference to the standards set out in EC (Drinking Water) Regulations 2000 Standards (SI 439 of 2000).

Three rounds of water sampling were undertaken in order to obtain a representative indication of the groundwater quality both upgradient, side gradient and down gradient of the facility.

Samples were taken on the 04/09/09, 26/11/2009 and on the 27/05/2010.

4.2 Monitoring Results

Hydrochemistry results returned from Alcontrol Laboratories are appended with this report as Attachment B. A breakdown of the results from the three monitoring rounds are outlined below.

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Diesel Range Organics

The results for diesel range organics (DRO) were all less than the detectable limits for all 4 on site wells for the three rounds of sampling undertaken. All results for diesel range organics in all monitoring wells were non detectable.

Nitrate as (NO₃⁻)

The results for Nitrate were all less than the detectable limits for the 4 on site wells for the three monitoring rounds. All results for Nitrate were all less non detectable.

Sulphate

The results for sulphate were less than the detectable limit for the monitoring rounds undertaken in September 2009 and for November 2009. Minor amounts of sulphate were detected in both MW3 and MW4 during the May 2010 monitoring round. The levels were 4.4mg/l and 21.9mg/l respectively. This is in line with the natural background levels for sulphate for this type of bedrock. The results are well below the drinking water limits.

Chloride

The results for chloride were well below the drinking water limits. The results are in line with natural background limits. The average value for Chloride was 22.87mg/l. The drinking water standards are 250mg/l.

Electrical conductivity

The results for electrical conductivity ranged from 377µs/cm to 764µs/cm. The results were well below the drinking water limits set at 2,500µs/cm

Ammonia

The results for ammonia were elevated in MW1, MW2 and MW3 for the three sampling rounds. The result for MW4 was below the detectable limit from the three sampling rounds.

MW3 is an upgradient well and has elevated Ammonia levels. Clear felling of forestry has occurred beside MW3 (as shown in the photolog attachment C). This clear felling occurred during early 2009.

Source of Ammonia

Investigation into the source of the elevated ammonia suggests that it may be from one of three sources.

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1) Leachate storage tank in the centre of the MRF

The leachate storage tank is located in the centre of the MRF and is equipped with a volume alarm (see Figure 2). This storage tank was hydrostatically tested in March 2009 to check for integrity. The storage tank passed the integrity test. The bund integrity certificate is attached in Attachment D. This proves that there is no leachate being released into the environment as a point source from the leachate storage tank.

In addition, chemical analysis results from the leachate storage tank shows elevated levels of ammonia as well as very elevated levels of sulphate and chloride in the leachate storage tank. The levels of both sulphate and chloride are found at low concentrations in the groundwater samples taken in all three monitoring rounds.

In the case of sulphate it is non detectable in MW1 and MW2 and found at natural background levels or below natural background levels in the monitoring wells MW3 and MW4. Chloride is at natural background levels in all wells. The difference in the chemical signatures suggests that possible leachate contamination from the leachate storage tank is not the cause of the elevated ammonia.

2) Wetland treatment area

The wetland area treats runoff from the site and effluent from the on site toilets and wash area. The treated effluent from this wetland is released into a surface drain to the west of the site (SW1- See Figure 2). From hydrochemistry comparison it does not appear to mix with groundwater. Chemical analysis results from the treated effluent from SW1 area show high levels of sulphate (>100mg/l) which has not been detected in the groundwater, confirming that this surface water is not interacting with the groundwater at this location. The difference in chemical signatures from the surface water samples when compared to the groundwater results show different results and suggests that the wetland treatment area is not the cause of the elevated ammonia found in the groundwater.

3) Surrounding landscape

From the discussion above it is evident that the high ammonia results could be from the surrounding landscape, due in part to the known groundwater flow direction and the activities occurring hydraulically upgradient of the facility. (See Figure 2 and 8)

The levels of Ammonia in MW1, MW2 and MW3 are likely to be a result of possible septic tank discharges, leakage from underground livestock slurry pits, the recent clear felling of forestry or the landspreading of agricultural waste material from the higher grounds to the south of the facility.

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5. Conclusion

The detailed hydrochemistry results obtained from the sampling undertaken at KWD from September 2009 through to May 2010 demonstrate that groundwater quality beneath the site is well within the standards set out in the EC (Drinking Water) Regulations 2000 Standards (SI 439 of 2000) with the exception of Total Ammonia in some of the wells.

Total Ammonia, represented as N was found to be in exceedence of the drinking water standard set out in the EC (Drinking Water) Regulations 2000 Standards at monitoring points MW1, MW2 and MW3. The highest concentration recorded at the site was at MW2 and MW3 which are located close to clear felled forestry plantation and agricultural lands close to the MRF facility. Groundwater flow direction has been demonstrated to flow from south west to north east, which suggests that the source of the ammonia is from outside the site boundary.

Future monitoring of the groundwater monitoring wells at KWD undertaken in accordance with the requirements of W0217-01 will enhance understanding of the fate of ammonia in groundwater at KWD.

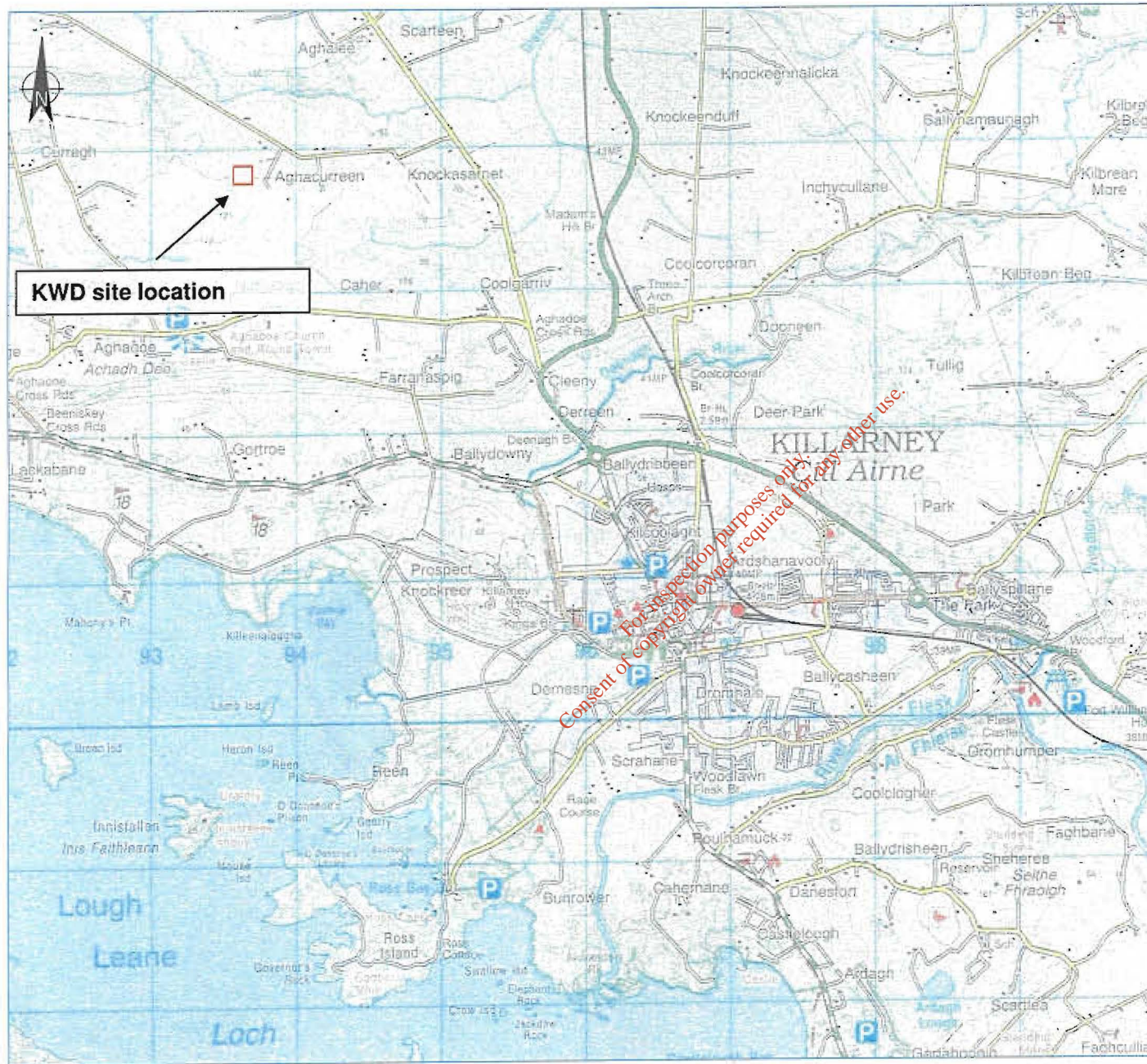
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Attachmer
Figures



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KWD site location

 Site location

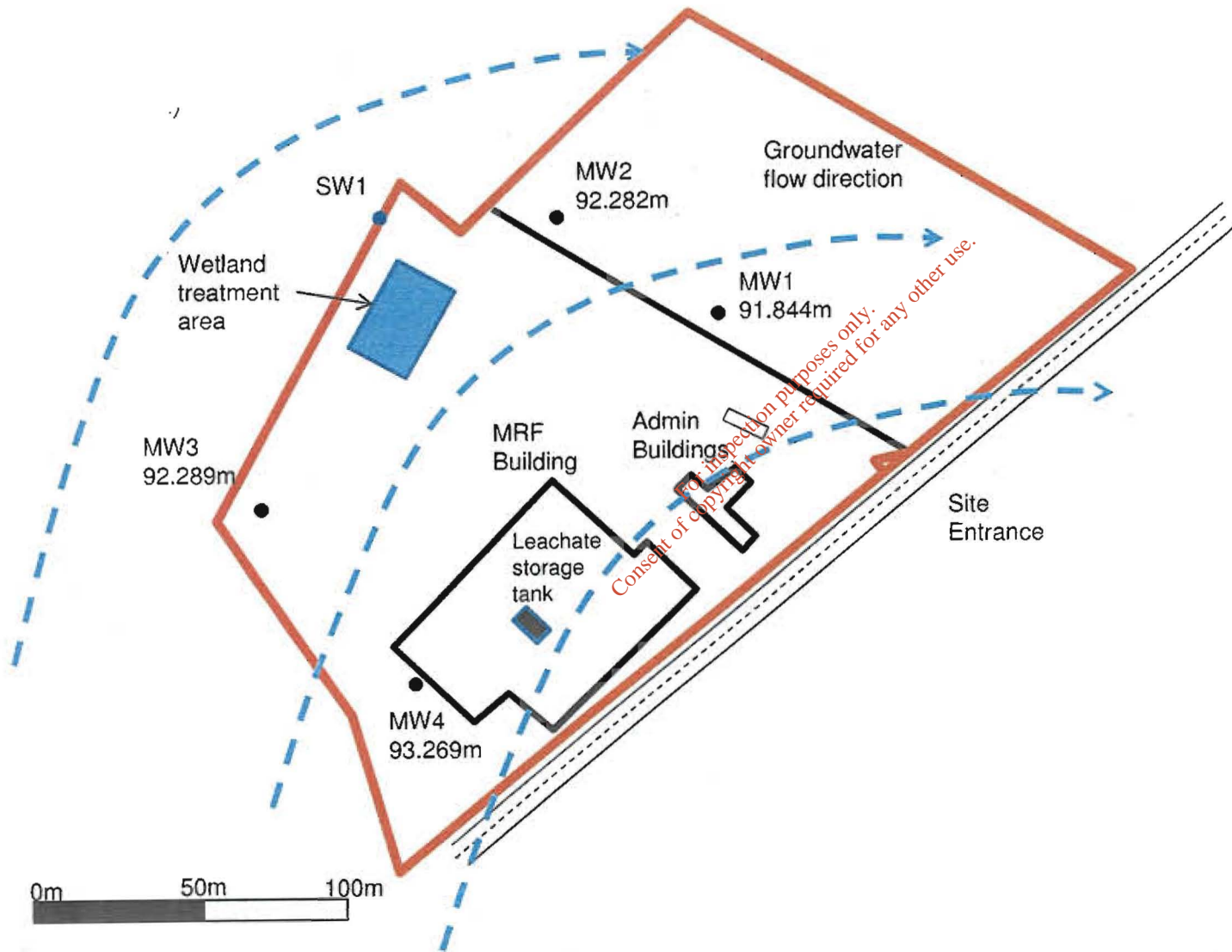
Ordnance Survey of Ireland
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Client: Killarney Waste
 Disposal
 Project Code: 1059_08
 Title: Site Location

Drawing No: 1
 Issue Date: 30/06/10
 Revision: 1
 Scale: Not to Scale

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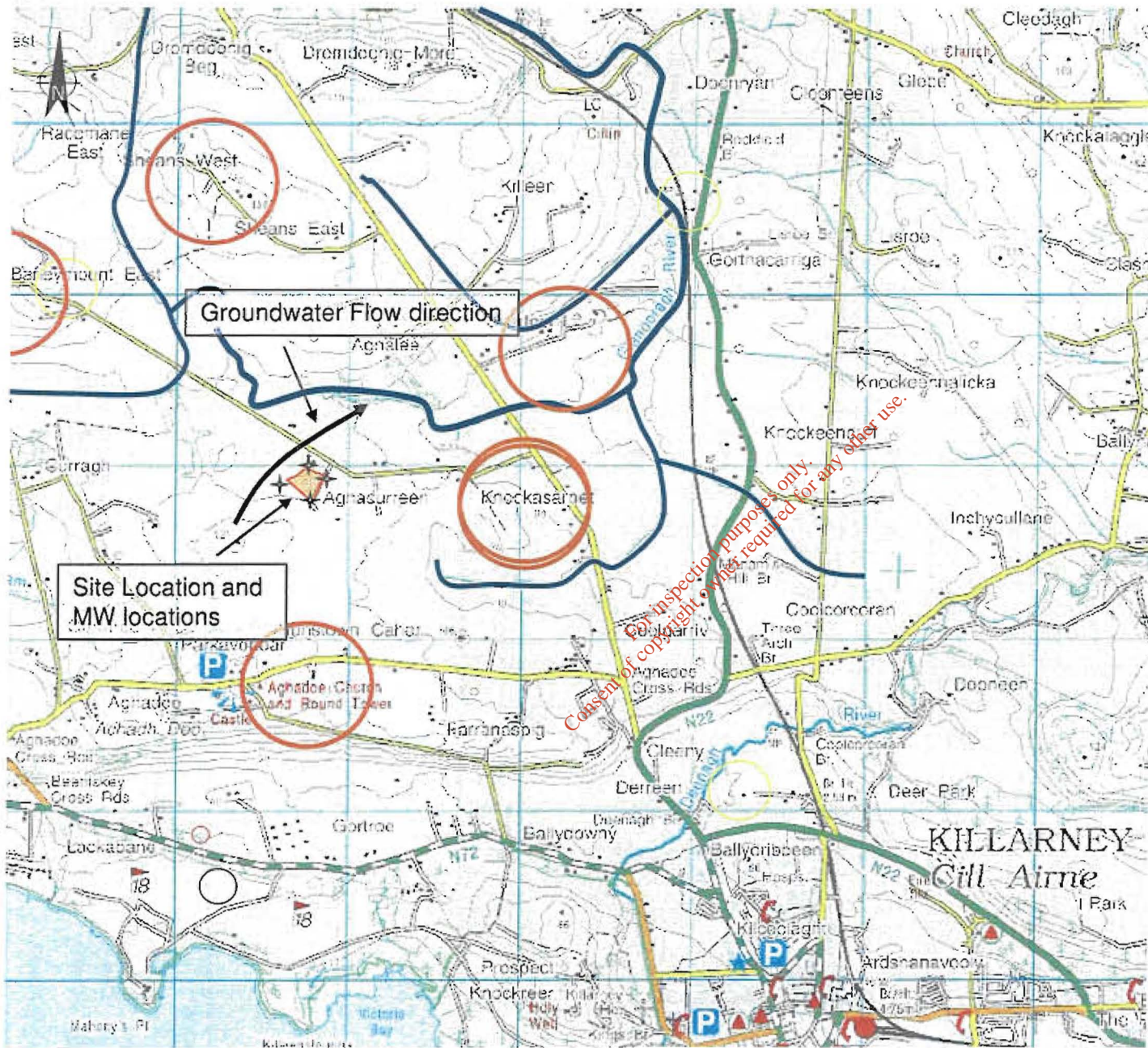
- Monitoring well locations and water level
- Site Boundary
- Building
- Leachate storage tanks
- Surface water monitoring location









Client: Killarney Waste Disposal
Project Code: 1059_08
Title: MW Locations

Drawing No: 2
Issue Date: 30/06/10
Revision: 1
Scale: See map

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-  Site Location
 -  Groundwater flow direction
 -  Glancoragh River
 -  Well Accuracy 1KM
 -  Well Accuracy 500m
 -  Well Accuracy 200m
 -  Well Accuracy 20m
 -  Monitoring well locations
- Ordnance Survey of Ireland
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Client: Killarney Waste Disposal
Project Code: 1059_08
Title: GSI well search results

Drawing No: 3
Issue Date: 30/06/10

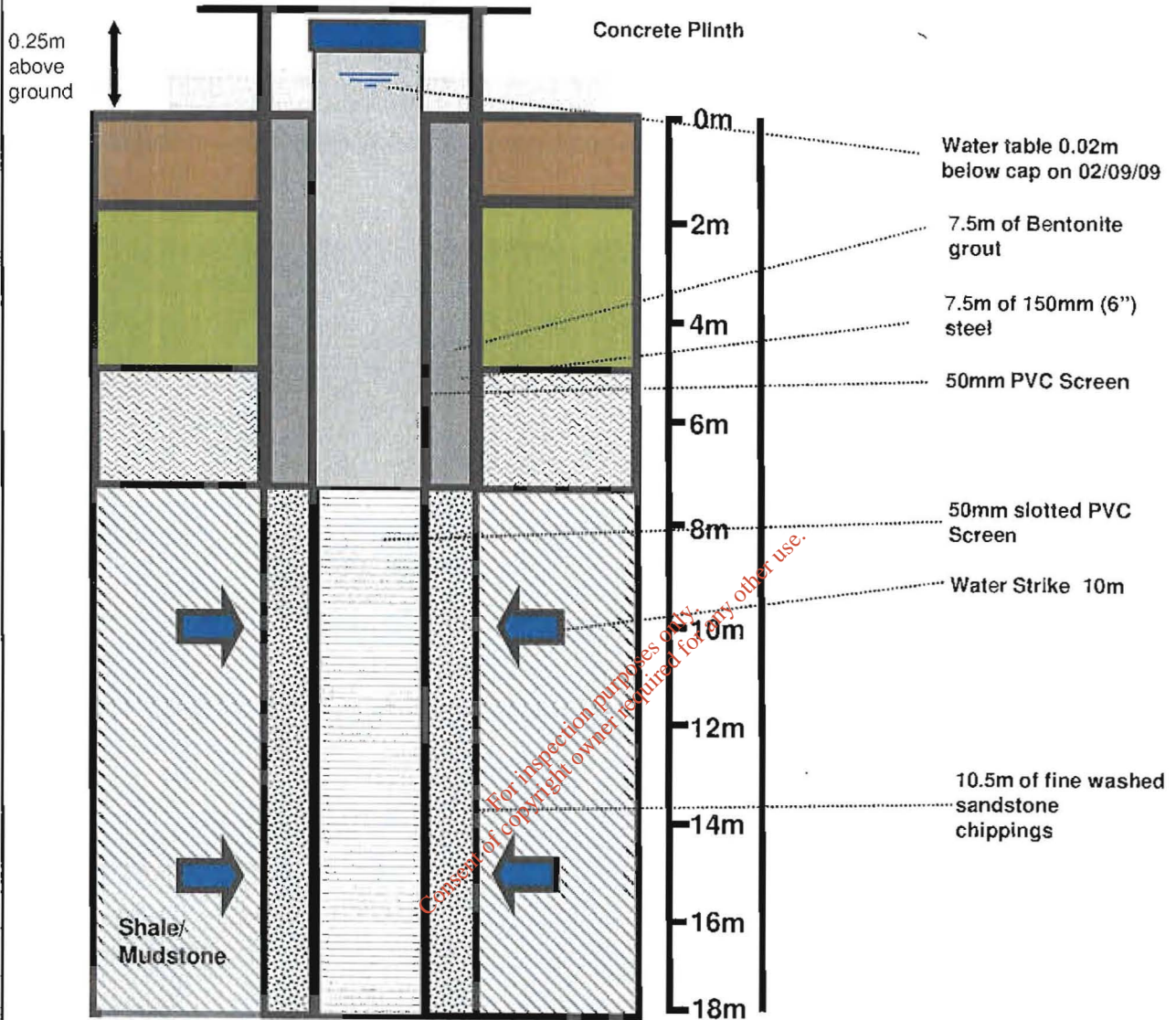
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MW1

Lockable Steel Cover
above ground



Legend

	Bedrock		PEAT
	Weathered Bedrock		Mottled CLAY
	Bentonite		
	Concrete		

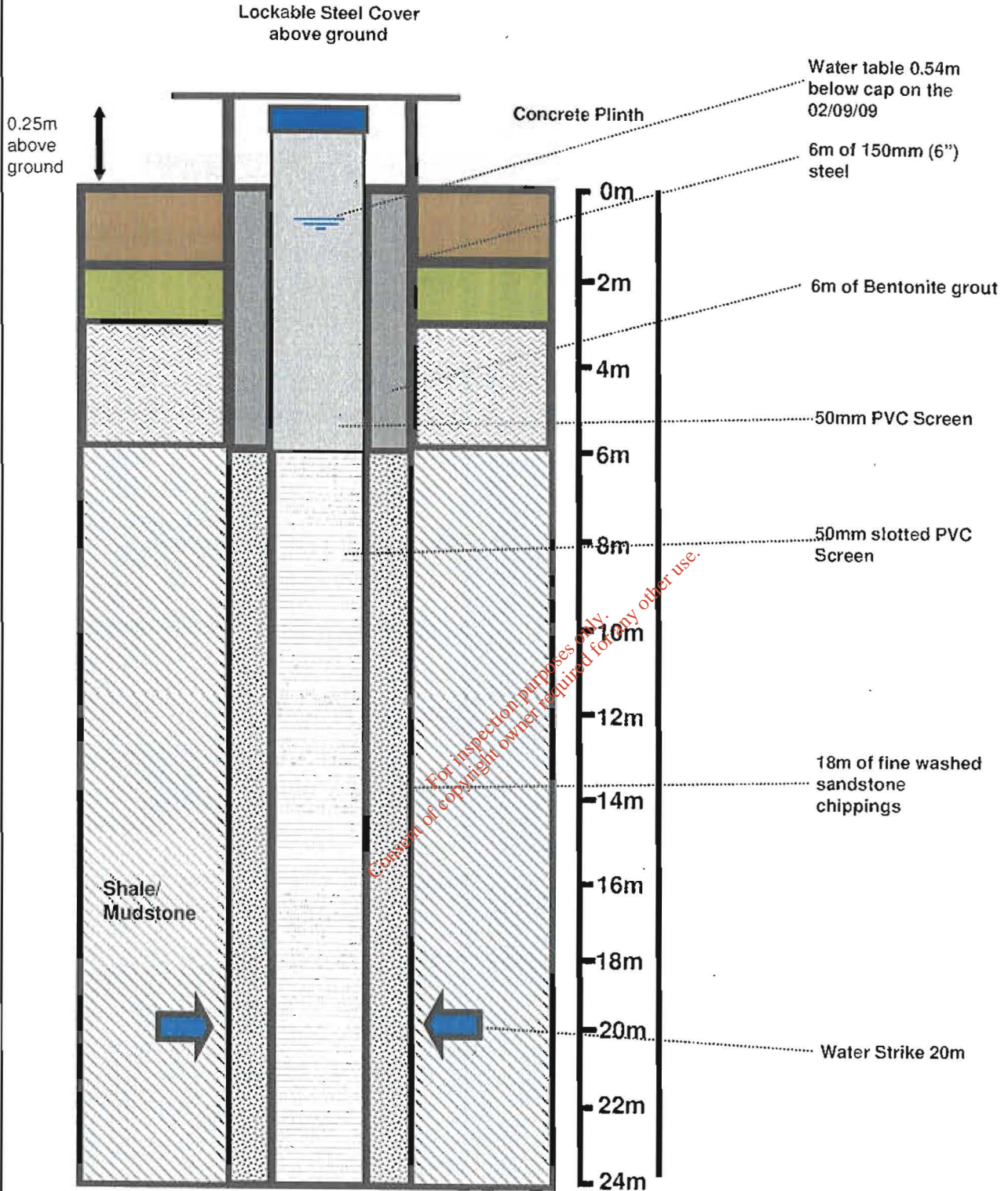
Monitoring Well 1
NGR E93688 N93994
Drill Date : 01/07/09



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Client		Killarney Waste Disposal	
Title		MW1 - Borehole Construction	
Scale	NTS	Project No.	1059-08
Figure	Figure 4	Rev.	A

MW2



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Legend

- Bedrock
- Weathered Bedrock
- Bentonite
- Concrete
- PEATY Topsoil
- Mottled CLAY

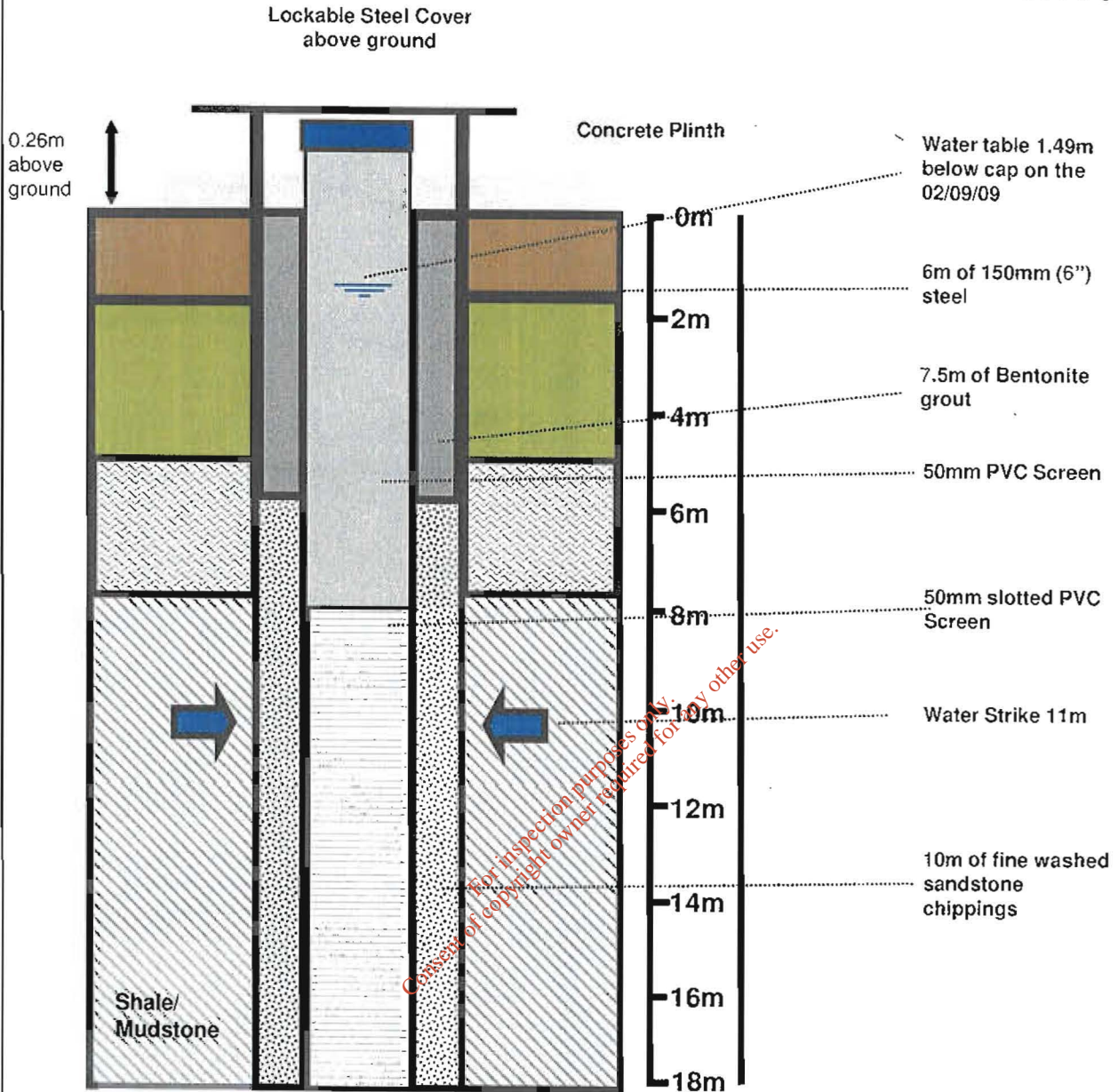


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Monitoring Well 2
 NGR E93639 N94024
 Drill Date : 01/07/09

Client		Killarney Waste Disposal	
Title		MW2 – Borehole Construction	
Scale:	NTS	Project No.	1059-08
Figure	Figure 5	Rev.	A

MW3



Legend

-  Bedrock
-  Weathered Bedrock
-  Bentonite
-  Concrete
-  PEAT
-  Mottled CLAY

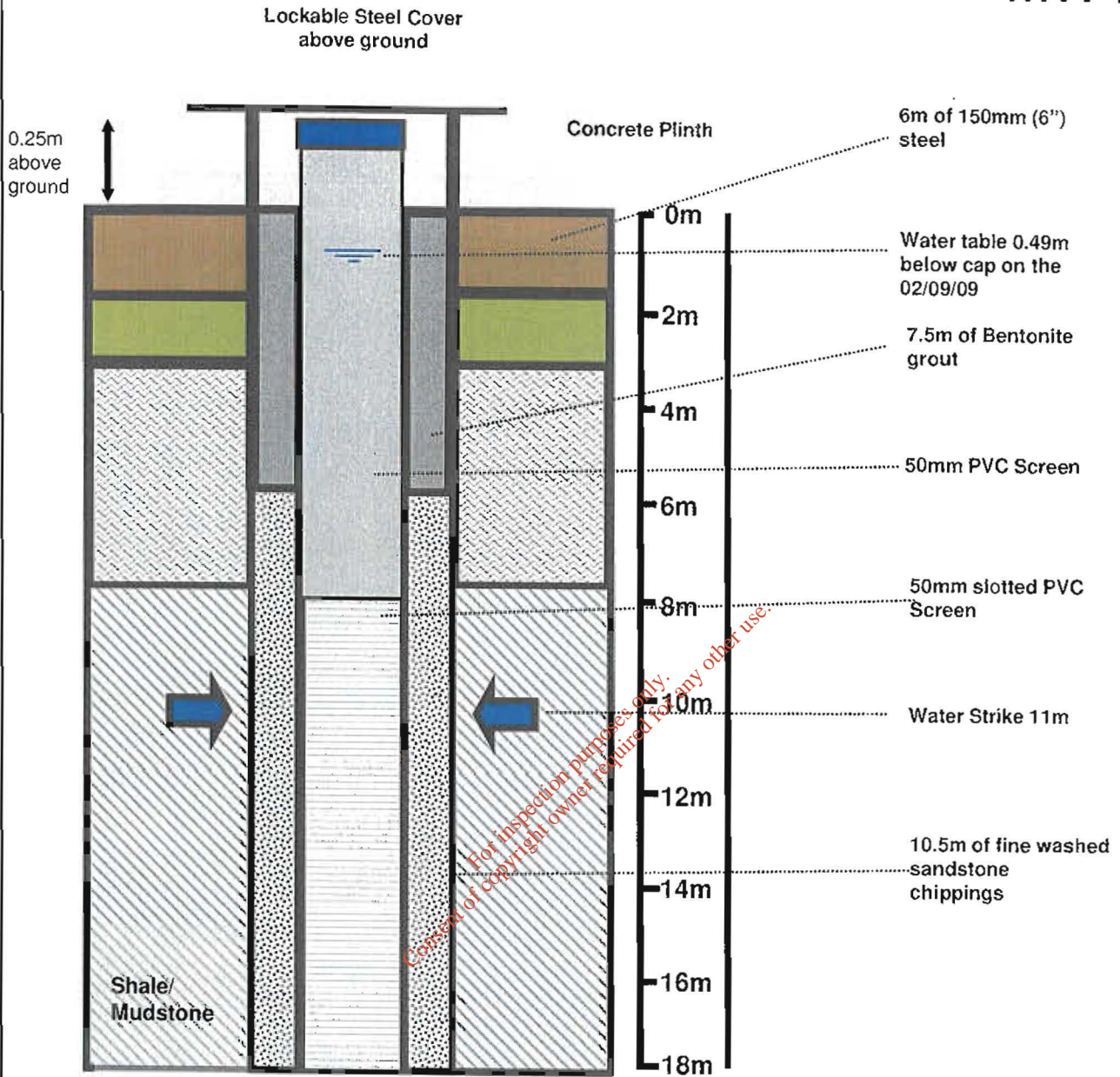
Monitoring Well 3
 NGR E93546 N93931
 Drill Date : 01/07/09







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Client Killarney waste Disposal .	
Title MW3- Borehole Construction	
Scale: NTS	Project No. 1058-08
Figure Figure 6	Rev A

MW4



Legend

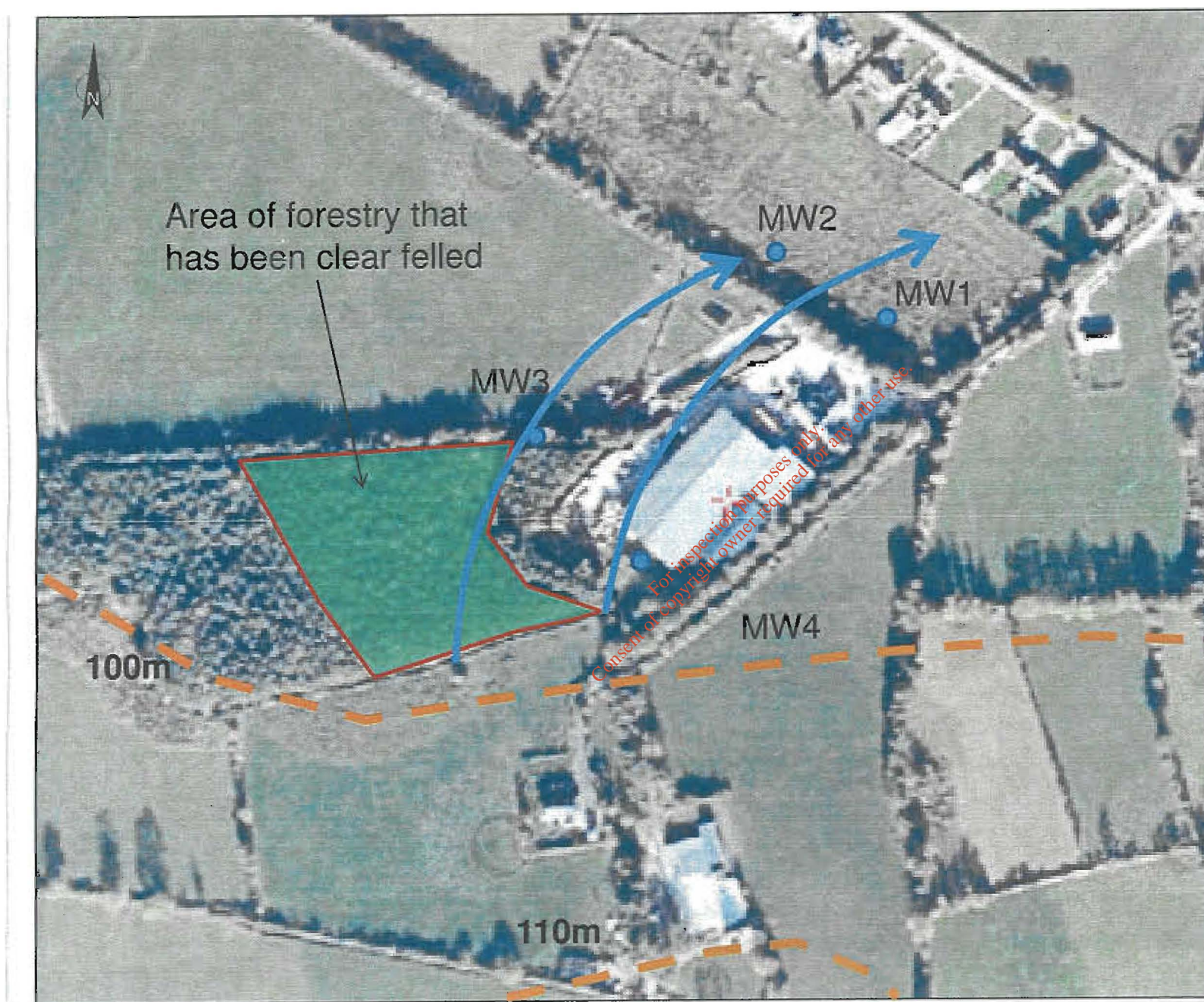
	Bedrock		PEAT
	Weathered Bedrock		Mottled CLAY
	Bentonite		
	Concrete		



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Monitoring Well 4
 NGR E93597 N93877
 Drill Date : 01/07/09

Client		Killarney Waste Disposal	
Title			
MW4 – Borehole Construction			
Scale	NTS	Project No	1059-08
Figure	Figure 7		Rev
			A



- Monitoring well locations
And water level
- Contour line
- Groundwater
flow direction

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Client: Killarney Waste
Disposal
Project Code: 1059_08
Title: Aerial Photo

Drawing No: 8
Issue Date: 30/06/10
Revision: 1
Scale: See map

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Attachment B

Hydrochemical results

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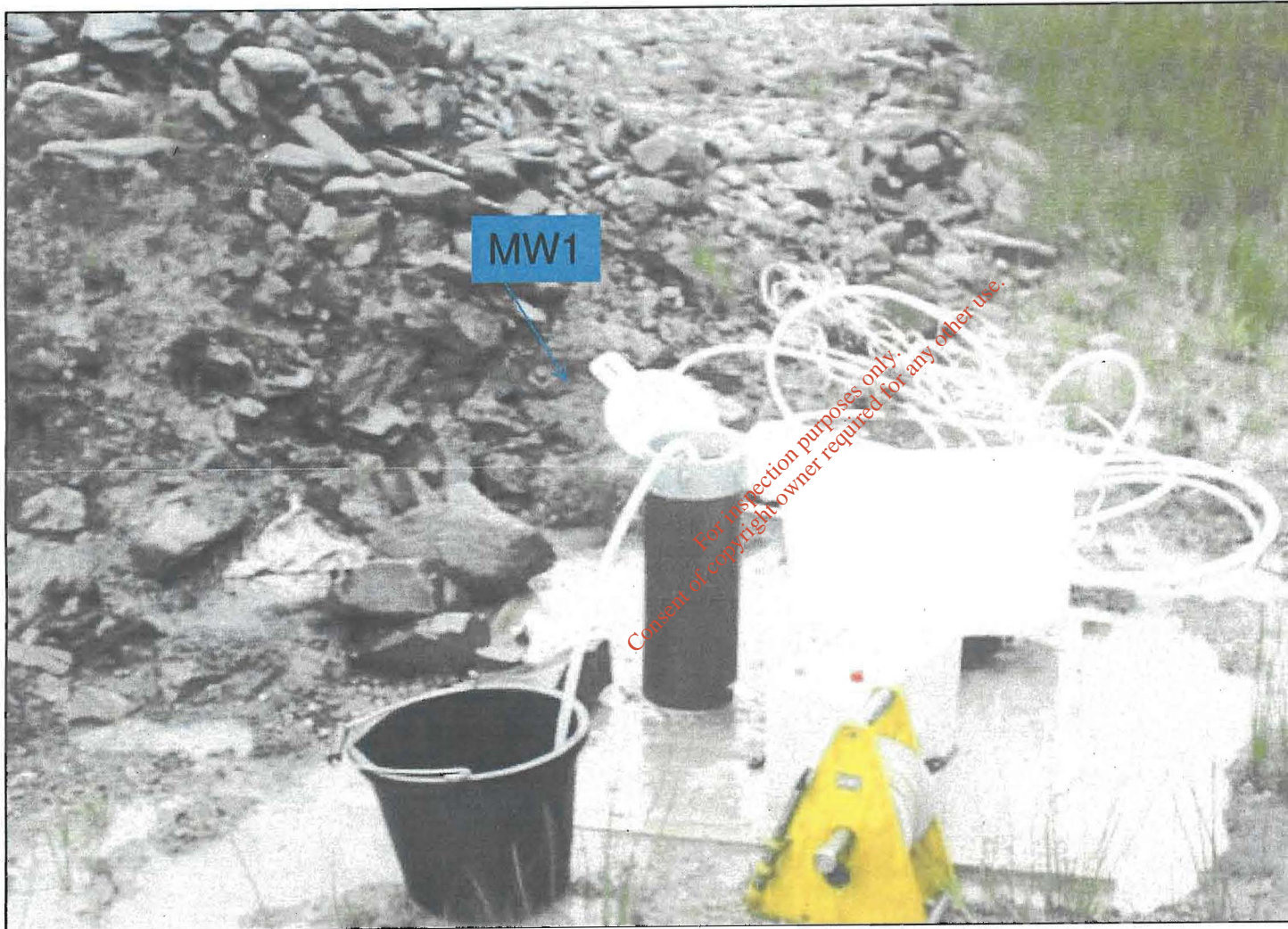
Field parameters- 04/09/2009	Units	MW1	MW2	MW3	MW4	Drinking water limit
Depth to Water	m	0.02	0.54	1.49	0.49	
Depth of Well	m	18	19.32	18.16	19.9	
Conductivity	ug/l	649	772	544	400	2500
Total dissolved solids	ppm	325	385	272	203	
pH	pH units	7.04	7.08	7.01	6.86	6.5-9.5
Temperature	°C	10.4	10.4	10.3	10.9	
Colour	Visual inspection	Slightly milky	Slightly Milky	Milky	Black in colour	
Laboratory results						
Ammoniacal Nitrogen as (N)	mg/l	1.77	2.83	2.86	<0.2	0.3
Chloride	mg/l	22.4	24.2	20.6	24.1	250
Nitrate	mg/l	<0.0677	<0.0677	<0.0677	<0.0677	50
Sulphate	mg/l	<3.0	<3.0	<3.0	<3.0	250
Conductivity	us/cm	618	728	508	396	2500
EPH Range Organics (C10-C40) Aqueous	ug/l	<10	<10	<10	<10	

Field parameters 26/11/2009	Units	MW1	MW2	MW3	MW4	Drinking Water Limit
Depth to Water	m	0.01	0.43	1.44	0.1	
Depth of Well	m	18	19.32	18.16	19.9	
Conductivity	ug/l	649	772	556	407	2500
Total dissolved solids	ppm	325	385	278	203	
pH	pH units	7.04	7.08	6.81	6.86	6.5-9.5
Temperature	°C	10.4	10.4	10.5	10.9	
Colour	Visual inspection	Slightly milky	Slightly Milky	Milky	Black in colour	
Laboratory results						
Ammoniacal Nitrogen as (N)	mg/l	1.0	1.8	1.32	<0.2	0.3
Chloride	mg/l	23.6	24.7	21.6	24.8	250
Nitrate	mg/l	<0.0677	<0.0677	<0.0677	<0.0677	50
Sulphate	mg/l	<3.0	<3.0	<3.0	<3.0	250
Conductivity	us/cm	621	741	514	377	2500
EPH Range Organics (C10-C40) Aqueous	ug/l	<10	<10	<10	<10	

Field parameters 27/05/2010	Units	MW1	MW2	MW3	MW4	Drinking Water Limit
Depth to Water	m	0.2	0.98	1.71	0.27	
Depth of Well	m	18	19.32	18.16	19.9	
Conductivity	ug/l	663	828	583	410	2500
Total dissolved solids	ppm	336	412	286	203	
pH	pH units	6.67	6.9	6.64	6.28	6.5-9.5
Temperature	°C	10	10.5	11	11.2	
Colour	Visual inspection	Slightly milky	Slightly Milky	Milky	Milky becoming Black	
Laboratory results						
Ammoniacal Nitrogen as (N)	mg/l	0.9	0.578	2.54	<0.2	0.3
Chloride	mg/l	21.6	21.4	19.6	22.4	250
Nitrate	mg/l	<0.0677	0.0799	<0.0677	<0.0677	50
Sulphate	mg/l	<3	<3	4.4	21.9	250
Conductivity	us/cm	605	764	508	379	2500
EPH Range Organics (C10-C40) Aqueous	ug/l	<46	<46	<46	<46	

Attachment C
Photolog

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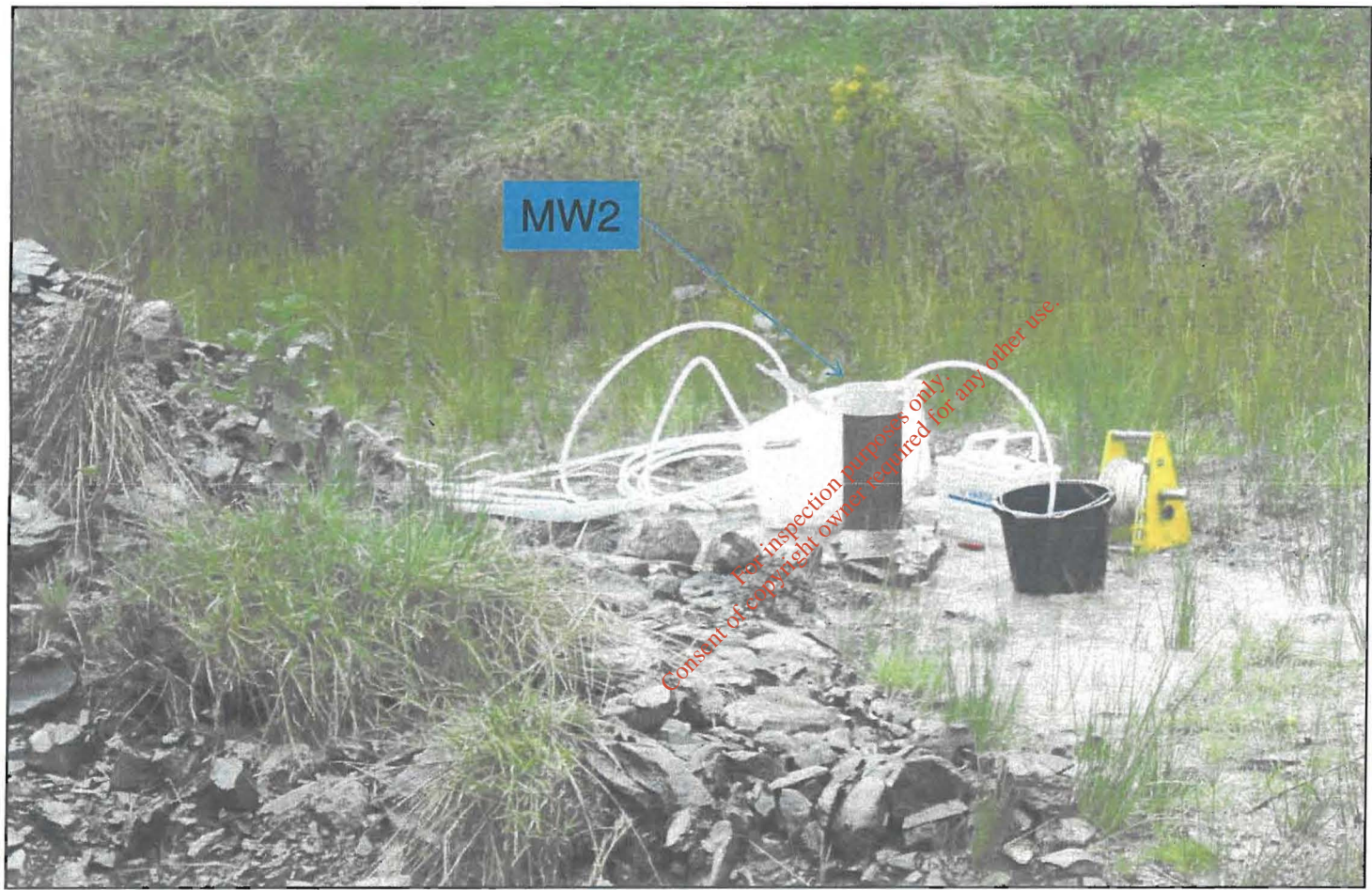
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Project Code: 1059_08
Title: Photo 2

Photo No: 1
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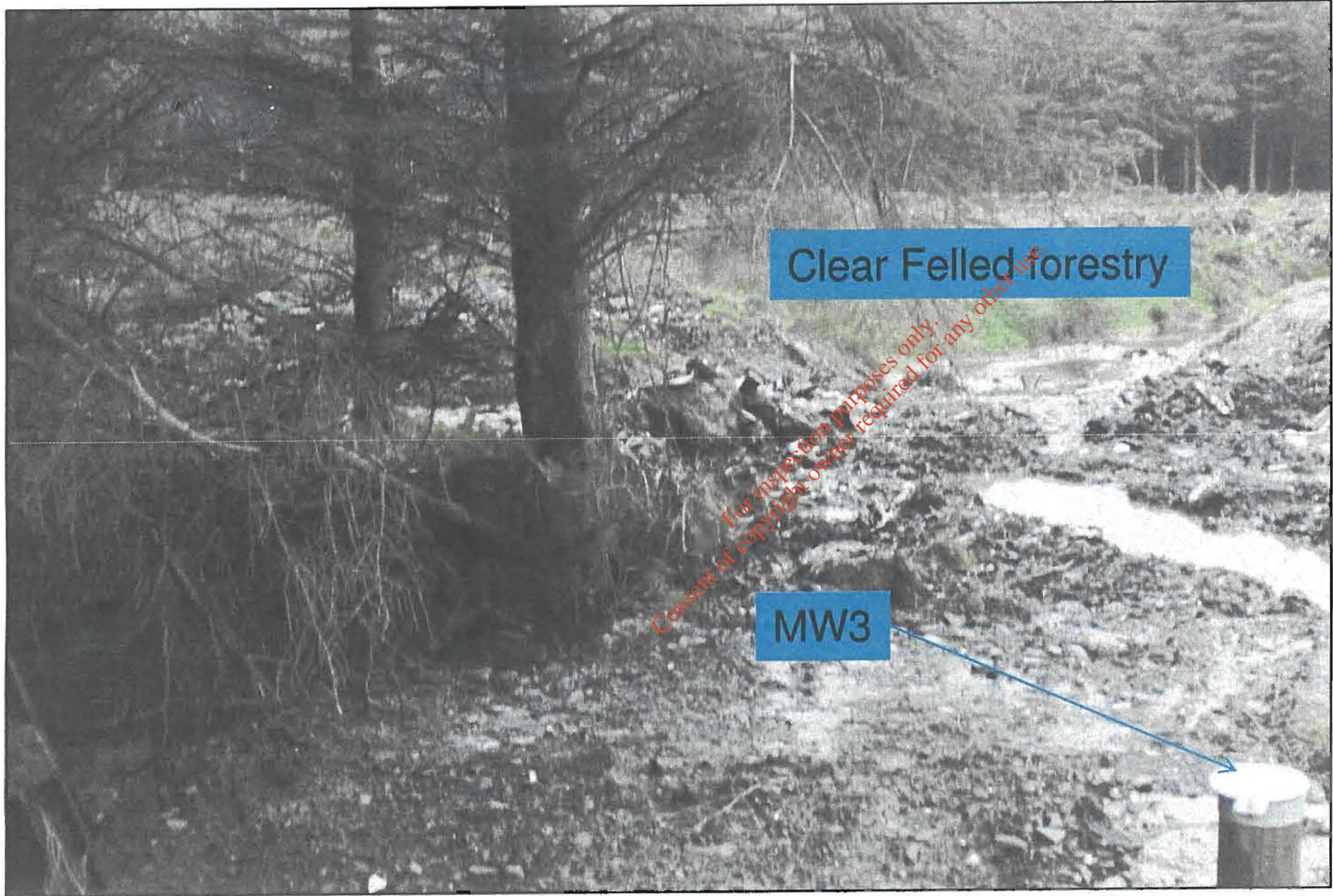


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Project Code:1059_08
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Clear Felled forestry

MW3

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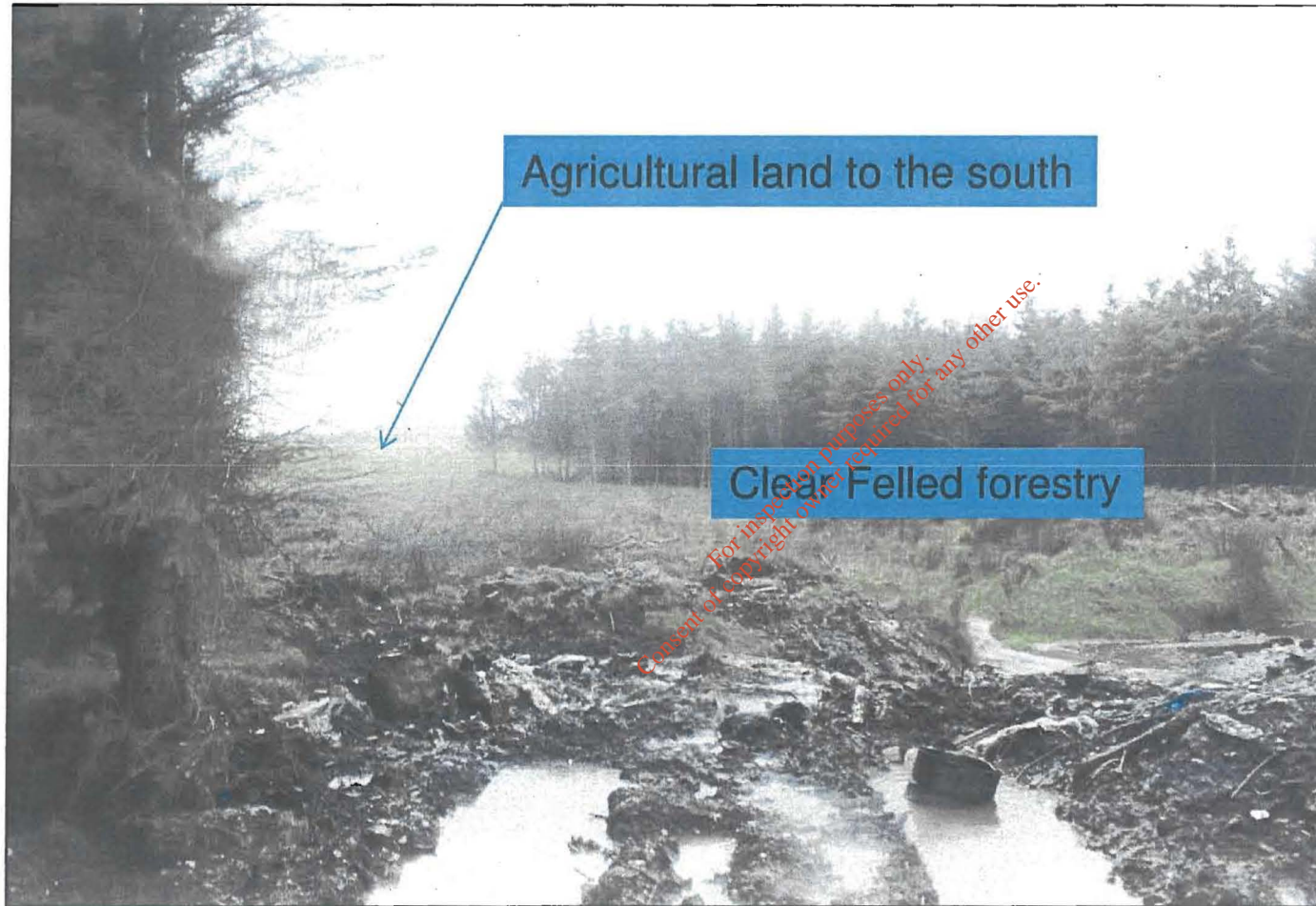
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Project Code: 1059_08
Title: Photo 3

Photo No: 3
Issue Date: 03/12/09
Revision: 1

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Agricultural land to the south

Clear Felled forestry

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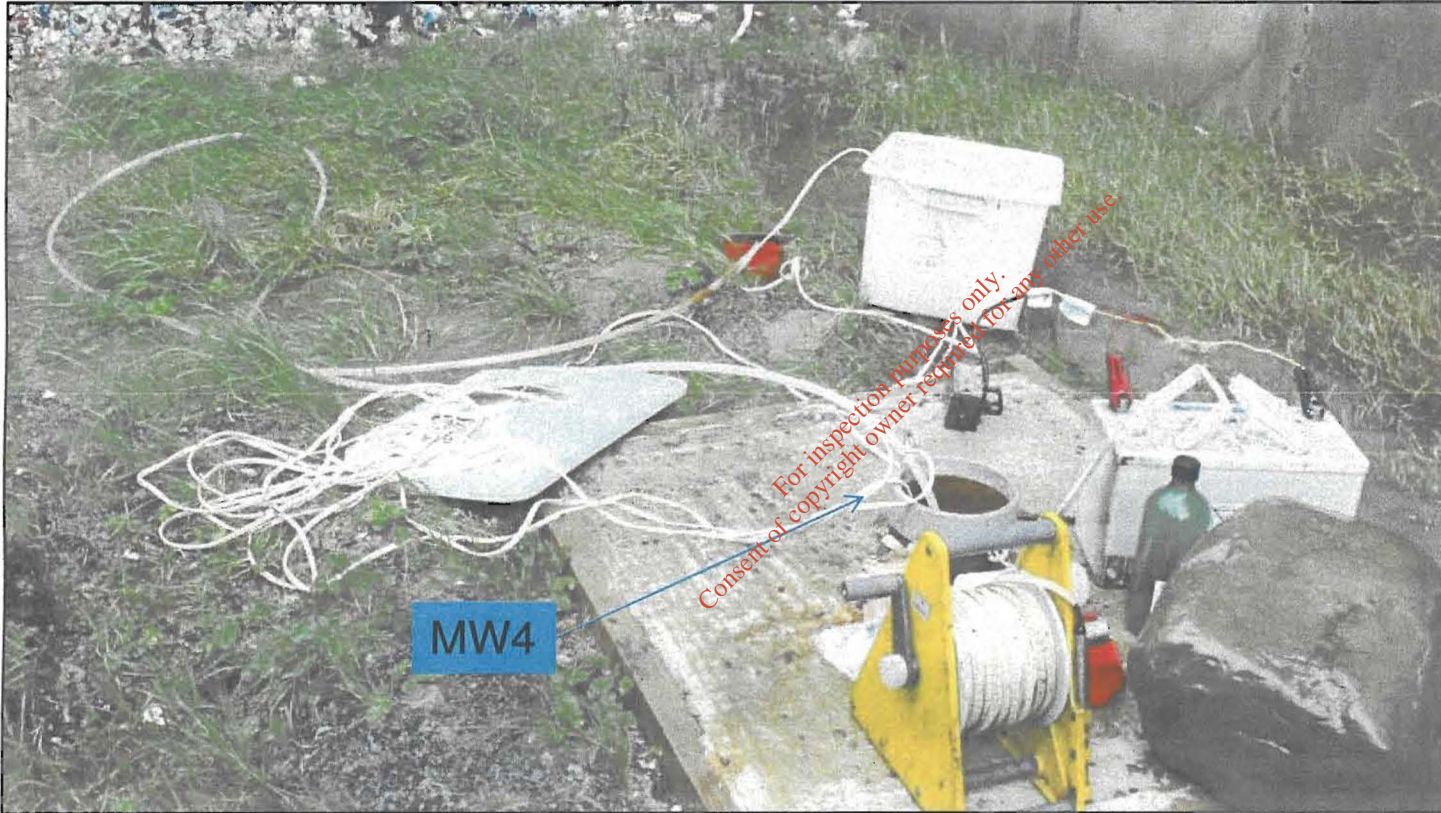
Client: Killarney Waste Disposal
Project Code: 1059_08
Title: Photo 4

Photo No: 4
Issue Date: 03/12/09
Revision: 1

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Client: Killarney Waste Disposal
Project Code: 1059_08
Title: Photo 5

Photo No: 5
Issue Date: 03/12/09
Revision: 1

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Attachment D Bund Integrity Certificate

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**Bund Test Sheet- Hydrostatic
and Visual Assessment**

Leachate Storage Tank

Company: Killarney Waste Disposal (KWD)	Grid Reference:
Date: 02/03/09	
Bund Ref. No.: Leachate Storage Tank	Bund Type – Concrete
Bund Location: Located within the Materials recovery building	
Bund Dimensions: Unknown	Primary Vessels – Materials of Construction: N/A
Bund Materials of Construction: Bund constructed from cast concrete	Primary Vessels – Unknown- there is an active warning light that flashes once bund is nearly full. This light is working
Bund Lining Material: none- Cast Concrete Design	Primary Vessels – N/A
Bund Retention Volume (Local): 9,100L	Weather conditions- N/A
Deemed practicable/safe to conduct hydrostatic test: Yes	
If no, give reasons:	
Date of Hydrostatic test: 02/03/09	

SECTION J ACCIDENT PREVENTION & EMERGENCY RESPONSE

Describe the existing or proposed measures, including emergency procedures, to minimise the impact on the environment of an accidental emission or spillage.

Also outline what provisions have been made for response to emergency situations outside of normal working hours, i.e. during night-time, weekends and holiday periods.

Describe the arrangements for abnormal operating conditions including start-up, leaks, malfunctions or momentary stoppages.

Supporting information should form **Attachment J**.

Attachment J contains the emergency response procedure, spill clean up procedure and insurance details for the facility.

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
----------------------------	---	-----------------------------	---

SECTION K REMEDIATION, DECOMMISSIONING, RESTORATION AND AFTERCARE

Describe the existing or proposed measures to minimise the impact on the environment after the activity or part of the activity ceases operation, including provision for post-closure care of any potentially polluting residuals.

For Landfill Applications, capping proposals are required, and reference should be made to the *Landfill Manual on 'Restoration and Aftercare'* published by the Agency, when completing this section.

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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The facility will be decommissioned by clearing all wastes and residues and any contamination resulting from activities on site so the condition of the facility will not cause or be likely to cause environmental pollution. No restoration or aftercare will be required.

SECTION L STATUTORY REQUIREMENTS

L. 1 Section 40(4) WMA

Indicate how all the requirements of Section 40(4)[(a) to (i)] of the Waste Management Acts 1996 to 2003 will be met.

Applicants should also describe how the proposed facility will comply with the requirements of BAT. In particular reference should be made to the considerations referred to in Annex IV of Council Directive 96/61/EC concerning integrated pollution prevention and control.

Attachment L.1 should contain the documentation requested above, along any relevant additional information.

Attachment L.1

In accordance with the Waste Management Acts 1996 to 2003 Article 40 (4) The Agency shall not grant a waste licence unless it is satisfied that-

- (a) any emissions from the recovery or disposal activity in question (“the activity concerned”) will not result in the contravention of any relevant standard, including any standard for an environmental medium, or any relevant emission limit value, prescribed under any other enactment,
- (b) The activity concerned, carried on in accordance with such conditions as may be attached to the licence will not cause environmental pollution,
- (c) The best available technology not entailing excessive costs will be used to prevent or eliminate or, where that is not practicable, to limit, abate or reduce an emission from the activity concerned,
- (d) If the applicant is not a local authority, the corporation of a borough that is not a county borough, or the council of an urban district, subject to *subsection (8)*, he or she is a fit and proper person to hold a waste licence,
- (e) The applicant has complied with any requirements under *section 53*.
- (f) Energy will be used efficiently in the carrying on of the activity concerned,
- (g) Any noise from the activity concerned will comply with, or will not result in the contravention of, any regulations under section 106 of the Act of 1992,
- (h) Necessary measures will be taken to prevent accidents in the carrying on of the activity concerned and, where an accident occurs, to limit its consequences for the environment,

Attachment J

**Emergency Response Procedure
Spill Clean up Procedure
Insurance Details**

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Killarney Waste Disposal
STANDARD OPERATING PROCEDURE

SOP No.: EP009 Emergency Response Procedure		
Prepared By: _____ OES Consulting	Date: _____	Rev. No.: 0
Approved By: _____ Environmental Manager	Date: _____	Issue Date: 12/01/2007
Approved By: _____ Managing Director	Date: _____	Page No.: 1 of 7
<u>Distribution</u> Managing Director Environmental Manager Yard Supervisor Transport Manager Accounts Manager	<u>Cross References</u> EP005 Environmental Non-conformance and Corrective Action Procedure ER005 Environmental Incident record ER008 Environmental Training Record	

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Revision No.	Date	Reason for Revision
0		New SOP

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Title EP009 Emergency Response Plan			
Record No: EP009	Issue Date: 12/01/2007	Rev. No.: 0	Page No.: 3 of 7

1.0 PURPOSE

The purpose of this procedure is to set out the action to be taken in the event of an emergency at Killarney Waste Disposal Ltd (KWD). The following measures have been developed in order to MAXIMISE the safety of plant personnel and the local community, and to MINIMISE the environmental impact of emergency situations.

2.0 OBJECTIVES

The objective of the emergency plan is to make maximum use of the companies resources to:-

- Contain and bring an emergency under control
- Minimise the number of casualties
- Minimise down-time
- Carry out rescue and treatment of casualties
- Minimise damage to the environment, plant and equipment
- Clarify positions and roles

3.0 DEFINITIONS

Emergency	Any adverse incident that will require an immediate response at the scene of an incident.
Crisis	A situation of state where the company's reputation is threatened as a result of intense scrutiny from stakeholders.
Stakeholders	Any person or group with a vested interest in an organisation and also has the capacity to exert an influence on it, either by its own actions or by the influence, which it exerts on others. Examples of stakeholders are employees and their relatives, customers, shareholders, the regulatory authorities, local community groups, the media, corporate owners and financiers.
H.S.A.	Health and Safety Authority
E.P.A.	Environmental Protection Agency

4.0 RESPONSIBILITY

4.1 All employees

It is the responsibility of all KWD personnel to abide by the Emergency Plan.

4.2 Management Team

It is the responsibility of the Management team to be familiar with the Emergency Plan and to ensure that all objectives set out in the plan are met. It is the responsibility of all Managers to ensure that employees are aware of the contents of the Emergency Plan and abide by it.

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Record No: EP009	Issue Date: 12/01/2007	Rev. No.: 0	Page No.: 4 of 7

4.3 Environmental Manager

It is the responsibility of the Environmental Manager to ensure that the contents of this procedure are accurate and that it is updated when necessary.

5.0 PROCEDURE

The emergency plan as will cover the following:-

- 5.1 Overview
- 5.2 Chain of command
- 5.3 Reporting procedures
- 5.4 Escape routes/assembly points
- 5.5 Shut-down procedures
- 5.6 Communications
- 5.7 Security

5.1 Overview

The Safety Statement for the facility contains an Emergency Plan which gives an overview of the company's commitment to dealing with an emergency effectively. The site itself is broadly divided into the areas shown below:-

- Waste Handling Area
- Administration Block
- Maintenance Area

The facility is situated on a third class road approximately 1 mile from the N22 Killarney to Tralee road. The nearest population to the facility is approximately 15 metres from the perimeter fence.

The different types of emergencies that can occur are:-

- Fire
- Medical Emergencies

Environmental Impacts associated with Incidents on Site

An environmental impact can arise as a result of firewater runoff or oil on site. Controls measures, which are in place to mitigate the impact of incidents on site, include –

- Fire detection system which is designed to prevent the development of a fire on site
- High standards of housekeeping, including material storage thereby reducing the potential for a fire developing.
- Provision of appropriate fire extinguishers and fire blankets.
- Training of personnel on the use of fire extinguishers and fire blankets.
- Fire Water Runoff Control – All firewater runoff from the site will flow to the KWD Fire water lagoon where it can be contained and tested.
- Provision of Spill Kits for chemicals and oil.
- Provision of drain covers.
- The periodic testing of procedures e.g. fire evacuation.
- Follow up of evacuations, drills and incidents to ensure preventative measures are put in place.

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5.2 Chain of Command

The designated Managing Director has overall responsibility for the Emergency Plan. He will be assisted by, or in his absence replaced by the Environmental Manager. The responsibilities are as follows:-

- Assess the situation to determine whether an emergency exists
- Direct efforts to evacuate personnel to minimise injury and/or property loss
- Co-ordinate all external emergency sources i.e. Killarney Fire Brigade, Garda Síochána etc.
- Direct plant shut-down operations
- In the event of a major incident or crisis at Killarney Waste Disposal, co-ordinate the Management Team and provide the person designated to speak to the media with information regarding the incident.

5.3 Reporting Procedures

Each area is under the control of a Manager/Supervisor who reports to a Environmental Manger. The Environmental Manager reports to the Managing Director.

Managing Director	-	Sean Murphy
Environmental Manager	-	Brian Bruton
Yard Supervisor	-	Rinalds Berzins
Transport Manager	-	Noel O'Reilly
Accounts Manager	-	Peter Kelliher

5.4 Escape routes/Assembly Points

Training is provided on the escape routes and location of the assembly points. Emergency evacuation drills shall take place at least twice a year, as per the Safety, Health and Welfare at Work (General Application) Regulations 1993, which specify that employers are required to prepare and communicate to employees and visitors any emergency procedures.

There is one fire assembly which is located away from the office building in the car park at the front entrance.

Each employee of the company is made aware of the Assembly Point that he/she MUST report to, should the alarms be sounded. Training is provided as part by the Managing to all employees.

5.5 Shut-down Procedures

In the event of an emergency, personnel are instructed to shut down all equipment, if safe to do so, either by the normal method or by the emergency stop buttons. No person should be placed at risk, under any circumstances, when shutting off equipment.

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5.6. Communications

Emergency Co-Ordinator (Managing Director/Environmental Manager)

The Managing Director or in his absence the Environmental Manager will take cognisance of all advice given to him by the Manager/Supervisors and be ready to assist the Killarney Fire Brigade on their arrival. If at any stage there is a risk to those at the Assembly Point the order may be given by the Emergency Co-Ordinator to evacuate to another part of the site or for a complete evacuation of the site.

He/She will advise the Management Team of the situation and outside normal hours, call appropriate members of the team. The personnel to be contacted as specified in the Killarney Waste Disposal Safety Statement include:

Fire Brigade	999/112
Ambulance Services	999/112
Local Hospital	0667126222
Local Doctor	
Gardaí	999/06471160
Priest	
Managing Director (Mr. Sean Murphy)	0876673839
Transport Manager	0866036309

He will keep the Management Team apprised of developments in the situation.

On arrival of the Fire Brigade, the Emergency Co-Ordinator must first inform the Chief Fire Officer in attendance of the following:-

- a) If all personnel have evacuated the premises or
- b) The last known whereabouts of any missing person/s
- c) The electrical status of the premises
- d) The exact location of the fire and what the fire consists of (ie. chemicals etc.) and of any special precautions that may need to be taken.

Emergency Response Team (E.R.T.)

A) Fire/Gas Release

The E.R.T. will assemble at the front of the building. The Emergency Co-Ordinator will assess the situation and a decision will be made regarding the appropriate response ie. whether they should wait for the arrival of the Fire Service. An on-site response involving the Emergency Response Team should only be initiated if the fire is at the early stage and there are sufficient persons on the team to deal with the incident. The materials involved in the fire will also determine if the incident can be dealt with using on-site resources.

The E.R.T. will make themselves available to carry out any instructions given to them by an Officer of the Fire Services. If not required, they will immediately withdraw from the scene of the emergency but must remain in the vicinity to assist with any relevant information the Fire Service may require.

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Record No: EP009	Issue Date: 12/01/2007	Rev. No.: 0	Page No.: 7 of 7

B) Spillage

In circumstances where a spillage of a hazardous substance occurs on site, the Emergency Co-Ordinator may be contacted via reception or security or by paging a member of the ERT. On arrival of the Emergency Response Team, the Emergency Response Team Leader will give the necessary instructions to the team to deal with the incident. The appropriate procedure to be followed is detailed in EP020 – Spill Clean Up Procedure.

First Aid Personnel

The designate site first aider “ to be arranged “ will be trained to ensure that first aid facilities are available before the arrival of the emergency services.

The Fire Alarm System is a fully addressable system with the Master Control Panel situated at the door of the shed and the main office building. The system consists of fire/gas detectors, which send a signal to a control system which, in turn, activates an alarm.

Most detectors are fitted with an LED, which flashes red, if the detector is activated. The location of the activation and the type of system activated will be displayed on the respective Control Panel and on the Master Panel. The location points can be seen on the fire panel drawings situated next to the Control Panels and Master Panel.

Security

Security is responsible for ensuring that site access is controlled and that the way is clear for arriving emergency appliances. They must also ensure that only authorised persons come on site and that deliveries are stopped.

The effectiveness of this emergency plan will be maintained through regular training of all personnel and specific training for First Aiders, Environmental Co-Ordinator, Emergency Response Team, and Management Team will be provided.

6.0 RECORDS

All Emergency Response related records shall be filed and retained for a period of no less than 7 years.

7.0 REFERENCE

ER005 Environmental Incident record
ER008 Environmental Training Record

Killarney Waste Disposal
STANDARD OPERATING PROCEDURE

SOP No.: EP019 Spill Cleanup Procedure		
Prepared By: _____ OES Consulting	Date: _____	Rev. No.: 0
Approved By: _____ Environmental Manager	Date: _____	Issue Date: 12/01/2007
Approved By: _____ Managing Director	Date: _____	Page No.: 1 of 3
<u>Distribution</u> Managing Director Environmental Manager Yard Supervisor Transport Manager Accounts Manager	<u>Cross References</u> ER005 Environmental Incident/ Non-Compliance Record EP005 Environmental Non-Conformance and Corrective Action Procedure EP007 Environmental Management Review	

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Title EP019 Spill Cleanup Procedure			
Record No: EP019	Issue Date: 12/01/2007	Rev. No.: 0	Page No.: 3 of 3

1.0 INTRODUCTION

1.1 Purpose

Spills of oil have the potential to cause a significant environmental impact as well as a risk to human health. The purpose of this procedure is to effectively and safely contain and clean up a chemical spill, thereby preventing risk to human health and the environment. This procedure applied to all potential spills of oil or chemicals that could arise on the Killarney Waste Disposal site.

2.0 RESPONSIBILITY

Managers/Supervisors

All Managers/Supervisors are also responsible for ensuring that all spills are investigated.

The Managing Director is responsible for arranging training on spill response, provision of spill kits and suitable PPE and providing advice on the potential environmental impacts of spills. The Environmental Manager is responsible for auditing corrective actions undertaken after a spill.

All Personnel

All personnel are responsible for notifying their supervisor or manager regarding spills on site.

3.0 PROCEDURE

Only suitably trained employees should attempt to clean up a spill on site.

4.0 NOTIFICATION OF SPILL

If a spill occurs while you are working or you notice a spill in your area you must notify your Manager/ supervisor immediately.

As soon as practical after the spill has been cleaned up, an Environmental Incident report should be filled in, in accordance with EP005, and forwarded to the Environmental Manager.

5.0 RECORDS

Records of any environmental incidents and associated documents shall be maintained on file for at least 7 years.

6.0 REFERENCE

ER005 Environmental Incident/ Non-Compliance Record
 EP005 Environmental Non-Conformance and Corrective Action Procedure
 EP007 Environmental Management Review

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9th September 2009

Re: **Our Insured: Kilarney Waste Disposal Ltd**

We confirm that our above client holds the following Policies:-

EMPLOYERS LIABILITY - Policy No: GEI/COM/001493602
Effective from 9th September 2009 to 8th September 2010
Limit of Indemnity is €13.5 million / any one occurrence

PUBLIC / PRODUCTS LIABILITY - Policy No: GEI/COM/001493602
Effective from 9th September 2009 to 8th September 2010
Limit of Indemnity is €6.5 million / any one occurrence but in aggregate in respect of products liability.

The specific indemnity of Cork City Council, Cork County Council, Kerry County Council, Listowel Town Council & Killarney Town Council is noted on this policy

The above is a summary of cover details and is not to be construed as the full details of cover provided. A copy of the Policy document is available for inspection upon request.

We trust that this is the information you require but please contact us if you have any queries or require any further information.

Yours sincerely

Ken Higgins
Senior Commercial Handler

UK Office: The Alameda, 200-220 The Quay, Bedford Square, Manchester, M3 2EP
QUINN Insurance Limited, a private company limited by shares, is registered in Ireland. No. 240781
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WASTE Application Form

- (i) Necessary measures will be taken upon the permanent cessation of the activity concerned (including such a cessation resulting from the abandonment of the activity) to avoid any risk of environmental pollution and return the site of the activity to a satisfactory state.

The applicant KWD are committed to use energy efficiently in the carrying on of activities, to implement necessary measures to prevent accidents, to comply with any conditions of the waste licence and ensure that any emissions are within the standard limits.

KWD are fully aware of their environmental responsibilities and realise that financial provisions maybe required for decommissioning, aftercare and environmental pollution incidents.

Annex IV of Council Directive 96/61/EC concerning integrated pollution prevention and control is described as follows:

Considerations to be taken into account generally or in specific cases when determining best available techniques, as defined in Article 2 (11), bearing in mind the likely costs and benefits of a measure and the principles of precaution and prevention:

1. the use of low waste technology;
2. the use of less hazardous substances;
3. the furthering of recovery and recycling of substances generated and used in the process of waste, where appropriate;
4. comparable processes, facilities or methods of operation which have been tried with success on an industrial scale;
5. technological advances and changes in scientific knowledge and understanding;
6. the nature, effects and volume of the emissions concerned;
7. the commissioning dates for new or existing installations;
8. the length of time needed to introduce the best available techniques;
9. the consumption and nature of raw materials (including water) used in the process and their energy efficiency;
10. the need to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it;

WASTE Application Form

11. the need to prevent accidents and to minimize to consequences for the environment;
12. the information published by the Commission pursuant to Article 16 (2) or by international organisations.

The applicant KWD are committed to applying best available techniques (BAT) in accordance with Annex IV of Council Directive 96/61/EC to prevent and, where practicable, generally to reduce emissions and impact on the environment as a whole.

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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L.2 Fit and Proper Person

The WMA in Section 40(4)(d) specifies that the Agency shall not grant a licence unless it is satisfied that the applicant (if the applicant is not a local authority) is a fit and proper person. Section 40(7) of the WMA specifies the information required to enable a determination to be made by the Agency.

- Indicate whether the applicant or other relevant person has been convicted under the Waste Management Acts 1996 to 2003, the EPA Act 1992 and 2003, the Local Government (Water Pollution) Acts 1977 and 1990 or the Air Pollution Act 1987.
- Provide details of the applicant's technical knowledge and/or qualifications, along with that of other relevant employees (Link to Section C.1 of the application).
- Provide information to show that the person is likely to be in a position to meet any financial commitments or liabilities that may have been or will be entered into or incurred in carrying on the activity to which the application relates or in consequence of ceasing to carry out that activity (Link to Section K of the application).

Supporting information should be included as **Attachment L 2** with reference to where the information can be found in the application.

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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Attachment L.2

The applicant or other relevant person has not been convicted under the Waste Management Acts 1996 to 2003, the EPA Act 1992 and 2003, the Local Government (Water Pollution) Acts 1977 and 1990 and the Air Pollution Act 1987. Details of the applicant's and employee's technical knowledge are shown in Section C.1.



WASTE Application Form

SECTION M DECLARATION

Declaration

I hereby make application for a licence / revised licence, pursuant to the provisions of the Waste Management Acts 1996 to 2003 and Regulations made thereunder.

I certify that the information given in this application is truthful, accurate and complete.

I give consent to the EPA to copy this application for its own use and to make it available for inspection and copying by the public, both in the form of paper files available for inspection at EPA and local authority offices, and via the EPA's website. This consent relates to this application itself and to any further information, submission, objection, or submission to an objection whether provided by me as Applicant, any person acting on the Applicant's behalf, or any other person.

Signed by : [Signature]
(on behalf of the organisation)

Date : 28/June/2010

Print signature name: Sean Musphy

Position in organisation : Managing Director

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Company stamp or seal: