March 2018

Annual Environmental Report - 2017

Waste Licence W0254-01

Walshestown Restoration Limited

Walshestown, Co. Kildare

MALONE O'REGAN

MALONE O'REGAN

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MALONE O'REGAN
ENVIRONMENTAL SERVICES LTD

Ground Floor – Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18V4K6
Tel: +353- 1- 567 76 55
Email: enviro@mores.ie

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Prepared By: Nuria Manzanas **Signed:**_____

Checked By: Martin Kearns **Signed:**_____

Approved By: Thomas Vainio-Mattila **Signed:**_____

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Walshestown Restoration Limited

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Contents

FIGURES

TABLES

APPENDICES

Appendix A: Topographical Survey

Appendix B: Site Monitoring Locations

Appendix C: Inferred Groundwater Flow Directions

1.0 REPORTING PERIOD

Malone O'Regan Environmental (MOR) was commissioned by Walshestown Restoration Limited (WRL) to prepare an Annual Environmental Report (AER) for 2017 for the Walshestown facility located at Walshestown, Blackhall, Tipperkevin, Bawnoge and Blackhall, Naas, Co Kildare, hereafter referred to as 'the Site'.

This report presents the Annual Environmental Report from 1st January to 31st December 2017.

1.1 Site Background Information

Waste Licence Register number W0254-01 was issued by the EPA on 23rd October 2013 to allow for acceptance of waste materials for processing, recovery and disposal at the Site, up to a maximum of 330,000 tonnes per annum. This licence was transferred to WRL on the 8th December 2015 from the previous operator Cemex (ROI) Ltd. The total quantity of waste permitted to be placed at the facility (over the authorised life of facility) is 2,400,000 m^3. This volume equates to approximately 4.32 million tonnes when using a 1.8 t/m^3 multiplier.

Waste acceptance commenced at the Site on the 16th January 2017.

2.0 SITE DESCRIPTION

The Site is located within the townlands of Walshestown, Tipperkevin, Bawnogue and Blackhall in County Kildare. The Site is approximately 68 hectares in size and has been worked as a gravel pit since the early 1970s. The lands to the west of the Site are occupied by the Punchestown racecourse.

The purpose of the Site is to restore a previously worked-out sand and gravel pit to its former landscape character. The development site will include buffer lands (where no works will be carried out), reception area, waste processing area, surface water management ponds, perimeter screening and landscaped berms, and engineered cells where waste will be placed to restore the site.

2.1 Waste Management Activities carried out at the Site

The licenced waste management activities, according to waste licence W0254-01, are set out in Table 2-1 and Table 2-2 below.

Table 2-1: Licensed Waste Disposal Activities

Licensed Waste Disposal Activities, in accordance with the Third Schedule of the Waste Management Acts 1996 to 2013	
Class D 1	Deposit into or on to land (e.g. including landfill, etc.).
Class D 5	Specially engineered landfill (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment, etc.).
Class D 15	Storage pending any of the operations numbered D 1 to D 14 (excluding temporary storage) being preliminary storage according to the definition of “collection” in section 5(1), pending collection on the site where the waste is produced.

Table 2-2: Licensed Waste Recovery Activities

Licensed Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Acts 1996 to 2013	
Class R 3	Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes), which includes gasification and pyrolysis using the components as chemicals.
Class R 4	Recycling/reclamation of metals and metal compounds.
Class R 5	Recycling/reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials.
Class R 13	Storage of waste pending any of the operations numbered R 1 to R 12 (excluding temporary storage (being preliminary storage according to the definition of ‘collection’ in section 5(l), pending collection, on the site where the waste is produced).

2.2 Methods of Deposition of Waste

Upon arrival, all delivery vehicles shall be directed to the Facility weighbridge where the arrival of each load will be recorded. All documentation accompanying the waste and the waste carrier will be inspected, and the nature of the waste will be confirmed by the Weighbridge

Operator. A waste transfer note containing the details of the load delivery time, date, tonnage, and carrier's details will be produced at the weighbridge.

An inspection of the haulier's consignment documents will be made by the Weighbridge Operator. If paper work is incomplete the Weighbridge Operator will retain the load until further information is provided. When the Weighbridge Operator is satisfied with the paper work and the origin of the wastes he/she will inform the driver of relevant Site Safety information and direct the driver to the waste processing area or the tipping area. If the incoming material is deemed unacceptable, it will be reloaded and sent off to a suitably licenced waste facility.

2.3 Material Accepted at the Facility

The following Table 2-3 shows details of materials accepted at the facility during 2017.

Table 2-3: Material Accepted at the Site during 2017.

Accepted Material	In Tonnes	In m^3
Waste	113,723.27	63,770.00
Construction	319,470.00	179,141.89
Total	**433,193.27**	**242,911.89**

2.4 Waste Sent Off the Facility

The following Table 2-4 shows details of materials sent off the facility during 2017.

Table 2-4: Waste Sent Off the Facility.

Year	EWC Code	Description	Volume (tonnes)
2017	13 08 02*	other emulsions (waste from oil separator)	17.98
2017	15 01 10*	packages containing residues of or contaminated by dangerous substances (waste oil drums)	0.2
2017	20 01 01	paper and cardboard (recycled office waste)	1.0
2017	20 03 01	mixed municipal waste (canteen waste)	1.5
TOTAL			**20.68**

2.5 Facility Void Space

The following Table 2-5 shows details for the licenced, developed and used void space at the facility.

Table 2-5: Landfill Void Summary 2017.

Year	Consented Void (m^3)	Void Developed (m^3)	Accepted Materials		Remaining Total Void (m^3)
			Waste – Cell 1A1 (m^3)	Construction Material (m^3)	
2017	2,400,000	171,726	63,770	179,142	2,157,088

The void calculations are based in a topographical survey carried out at the Site on the 29th January 2018. A copy of the survey is attached at Appendix A.

2.5.1 Meteorological Data Summary

The total catchment area (not capped, lined waste cell area) during 2017 was 14,600m^2. The annual water balance calculation estimates a net rainfall volume of 2,228m^3 for the catchment area of the WRL facility.

Monthly meteorological (rainfall and potential evapotranspiration) data has been taken from the closest rainfall station (Baldonnel – Casement Aerodrome). A summary of the data for 2017 is shown in Table 2-6.

Table 2-6: Total Rainfall Data Summary 2017

Month	Area (m^2)	Rainfall (m)	Rainfall over land area (m^3)	Potential Evapotranspiration (m)	Net Rainfall (m)	Net Rainfall Over Land Area (m^3)
January	14,600	0.0261	381	0.0137	0.0124	181
February	14,600	0.0636	929	0.0196	0.0440	642
March	14,600	0.0659	962	0.0348	0.0311	454
April	14,600	0.0088	128	0.0497	-0.0409	-597
May	14,600	0.0671	980	0.0891	-0.022	-321
June	14,600	0.0918	1,340	0.0844	0.0074	108
July	14,600	0.0429	626	0.0904	-0.0475	-694
August	14,600	0.0654	955	0.0730	-0.0076	-111
September	14,600	0.0705	1,029	0.0461	0.0244	356
October	14,600	0.0572	835	0.0270	0.0302	441
November	14,600	0.0795	1,161	0.0121	0.0674	984
December	14,600	0.0647	945	0.0110	0.0537	784
Annual	14,600	**0.7035**	**10271.1**	**0.5509**	**0.1526**	**2,228**

3.0 SUMMARY OF ENVIRONMENTAL MONITORING

The monitoring and reporting requirements for the WRL facility are listed in Table 3-1 below.

Table 3-1: Environmental Monitoring Requirements for WRL Facility.

Parameter	Monitoring Frequency (as per Schedule D of Waste Licence Register W0254-01)
Dust	Monthly
Noise	Quarterly
Groundwater	Monthly, Biannually, Annually
Storm Water	Daily, Monthly, Quarterly, Annually

The monitoring locations for the Site are shown in Table 3-2 below. Refer to Drawing 1 (Appendix B) for a site location map showing the environmental locations.

Table 3-2: Environmental Monitoring Locations and Co-ordinates.

MEDIA	LOCATION	EASTING	NORTHING
Groundwater Monitoring Boreholes	BH-1	292612	215285
	BH-2	292616	215315
	BH-3	292790	214827
	BH-4	293194	215365
	BH-7	293317	215782
	BH-8	293305	215806
	BH-9	292617	215696
	BH-10	292713	215977
	BH-11	292930	215966
	BH-12	293123	215973
	BH-13	292616	215648
	BH-14	292616	215671
	BH-A	292590	215402
	BH-Bally	291901	215434
Noise	N1	293146	216009
	N2	293262	215819
	N3	293086	215234
	N4	292921	214829
	N5	292642	214651
	N6	292633	215358
Dust	D1	293146	216009
	D2	293262	215819
	D3	293086	215234
	D4	292921	214829
	D5	292642	214651

	D6	292633	215358
Storm Water	SW1	293256	215872
	SW2 Note 1		
	Discharge from Interceptor	293289	215792

Note 1: SW2 (internal discharge into the new pond) – the new pond has not yet been constructed.

3.1 Groundwater Emissions and Monitoring

Groundwater monitoring was undertaken at fourteen (14 No) locations in accordance with Schedule C.7.2. of the Licence. BH11 and BH12 were installed in April 2017, however, monitoring at those wells started in May 2017. BH13 and BH14 were installed in June and monitoring started also in June 2017. Coordinates for all monitoring locations are detailed in Table 3-2.

3.1.1 Groundwater Levels

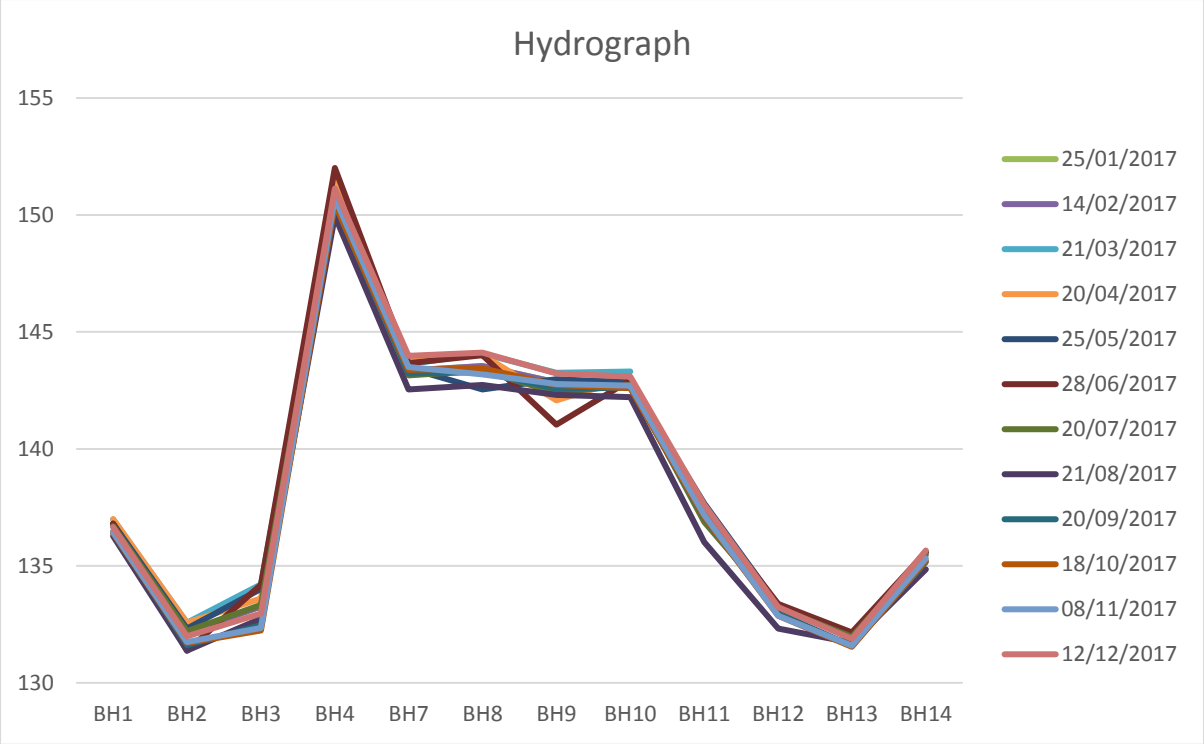
Groundwater levels were monitored on a monthly basis in accordance with Schedule C – Table C.7.2 of Waste Licence Register No. W0254-01.

Groundwater levels were measured using a standard water level meter. Measurements were made to the nearest centimetre relative to the top of the steel casing that protects each monitoring pipe.

The monthly water level data recorded from groundwater monitoring wells at the Site during 2017 are shown in Figure 1 below.

Drawings depicting the inferred overburden and bedrock aquifer flow direction have been attached at Appendix C of this report.

Figure 1: Static Groundwater Levels during 2017



3.1.2 Groundwater Quality

Groundwater monitoring was undertaken monthly in accordance with Schedule C – Table C.7.2 at the Site (W0254-01). The wells were purged using an inertial pump with dedicated tubing and foot valves to prevent cross-contamination between wells. The volume of groundwater purged at each well (three well volumes) was recorded.

Field parameters for pH, dissolved oxygen and electrical conductivity were recorded using calibrated equipment together with observations on the physical appearance of the samples.

Samples were collected for subsequent comprehensive laboratory analysis at each sampling location. The samples were kept cool, in darkness and sent to an accredited laboratory for analysis.

3.1.3 Assessment Criteria

Field measured parameters and laboratory analytical results for groundwater samples collected were compared, where applicable, to the following groundwater generic assessment criteria (referred to hereafter as GAC):

- Statutory Instrument S.I. No. 9 of 2010: European Communities Environmental Objectives (Groundwater) Regulations 2010, as amended 2012 (S.I. No. 149 of 2012) as amended 2016 (S.I. No.366 of 2016).

In the absence of Groundwater Regulation Values for specific parameters, the following assessment criteria were used for indicative purposes.

- The Interim Guideline Values (IGVs) for Groundwater from the Environmental Protection Agency (EPA) (2003), 'Towards setting guideline values for the protection of groundwater; Interim Report'.

3.1.4 Groundwater Results and Discussion

All groundwater samples were analysed according to schedule C.7.2 of the Licence. A full list of these parameters and the monitoring frequency are listed in Table 3-3.

Table 3-3: Groundwater Monitoring Parameters as of Schedule C.7.2

Parameter	Monitoring Frequency
Visual inspection/odour Note 1	Monthly
Groundwater level (wells)	Monthly
Dissolved oxygen	Monthly
Electrical conductivity	Monthly
pH	Monthly
Total ammonia	Monthly
Chloride	Monthly
Sulphate (SO4)	Monthly
COD	Biannually
Nitrate	Biannually
Total nitrogen	Biannually
Conductivity	Biannually
Fluoride	Biannually
Hazardous Compounds Note 2	Biannually
Metals/non-metals Note 3	Annually
Mercury	Annually

Total P/orthophosphate	Annually
Faecal coliforms	Annually
Total coliforms	Annually

Note 1: Where there is evident of gross contamination, additional samples should be analysed and the full suite of parameters tested.

Note 2: The relevant hazardous substances for monitoring in groundwater shall be identified by the licensee by undertaking a risk based assessment.

Note 3: Metals to be analysed (B, Cd, Ca, Cr (total), Cu, Fe, Pb, Mg, Mn, Ni, K, Na, Zn).

A summary of the concentrations for the monthly parameters (Total Ammonia, Sulphate and Chloride) recorded during 2017 is presented in Figure 2 to Figure 4 below. For comparison purposes the GAC limit have been added to the tables.

Figure 2: Total Ammonia in Groundwater during 2017.

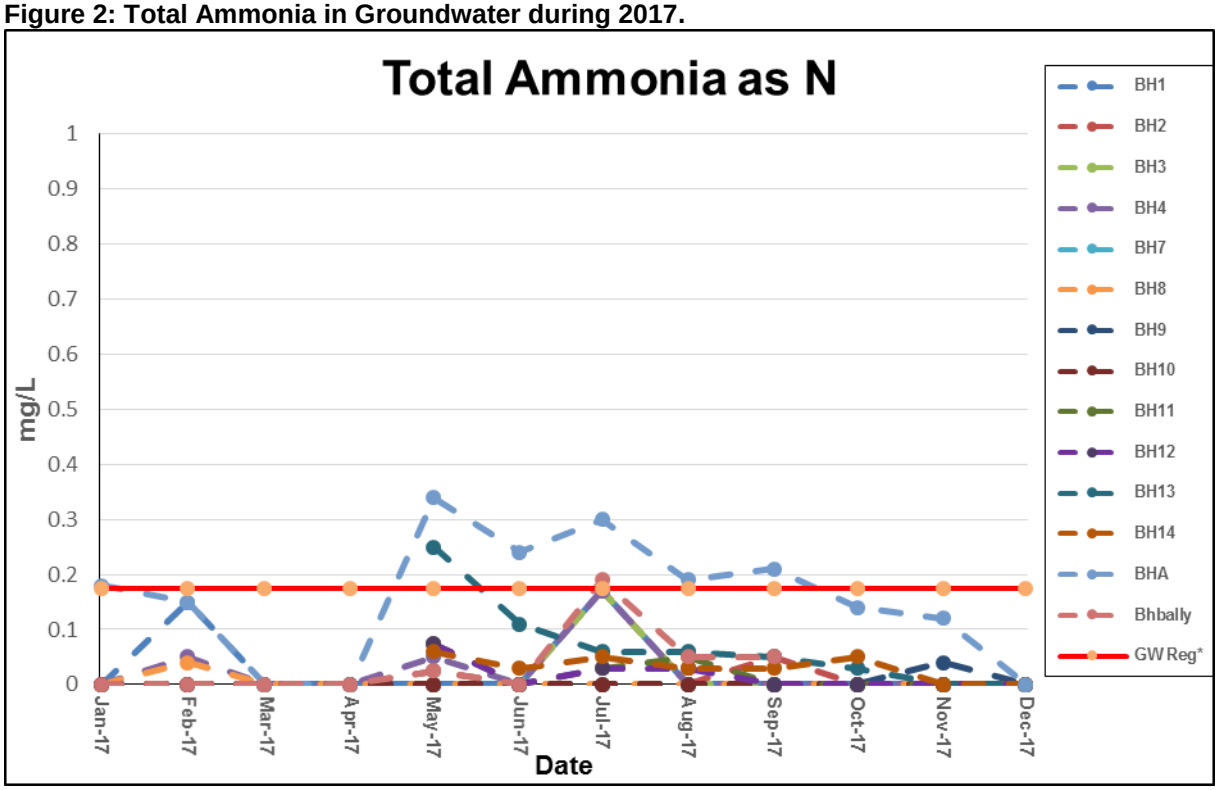


Figure 3: Sulphate in Groundwater during 2017

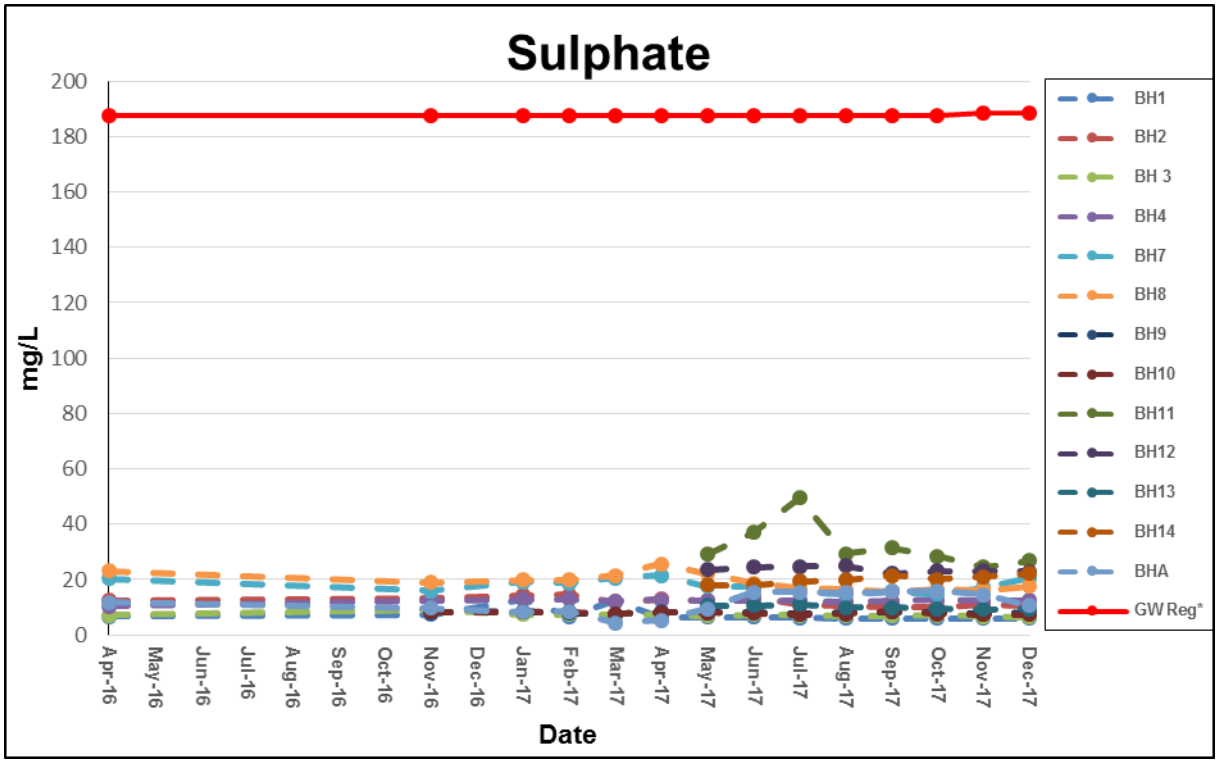
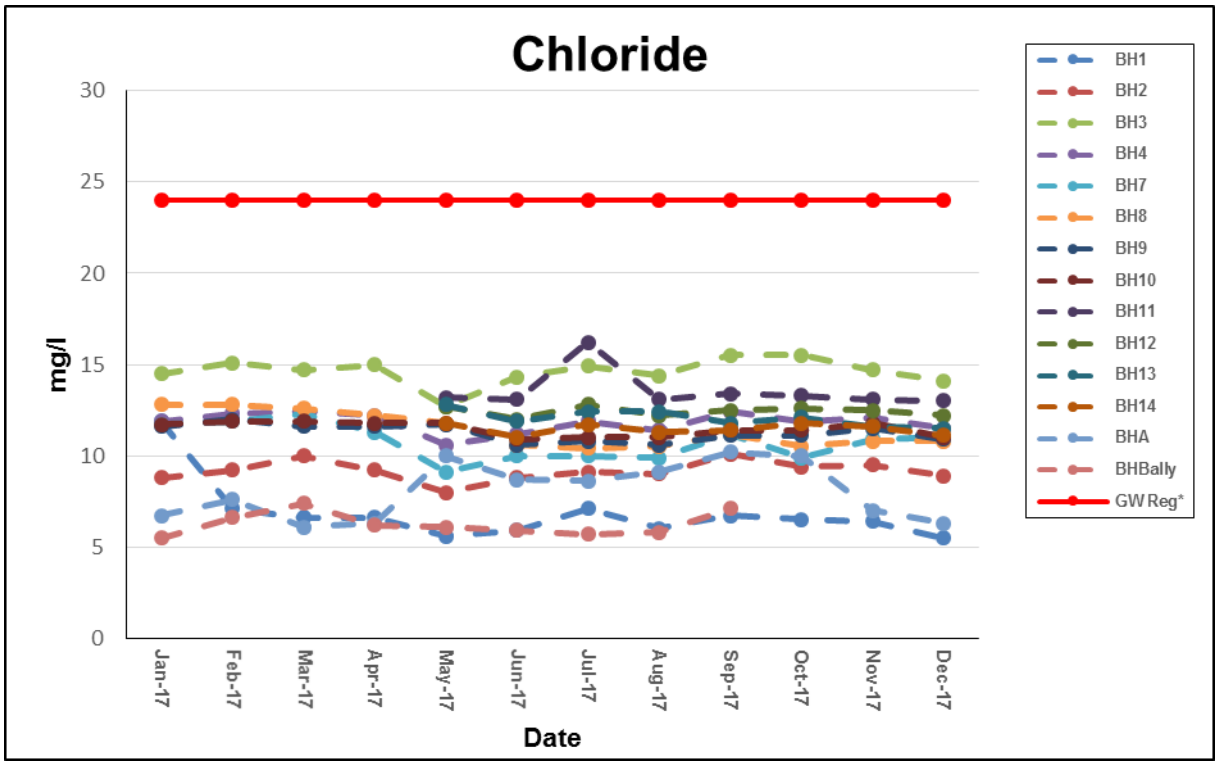


Figure 4: Chloride in Groundwater during 2017



Groundwater quality at the Site has been stable over the course of the year with expected seasonal fluctuations. Exceedances of ammonia and coliforms were reported at some groundwater monitoring locations. A summary of the elevated parameters is given below.

BH1: All results were observed below the GAC.

BH2: All results were observed below the GAC.

BH3: All results were observed below the GAC.

BH4: All results were observed below the GAC.

BH7: Faecal coliforms was detected above the IGV (0cfu/100ml) during the annual monitoring event in January (2cfu/100ml). Total Coliforms was also recorded above the IGV (0cfu/100ml) during January 2017 (6.3 MPN/100ml). All other results were observed below the GAC.

BH8: All results were observed below the GAC.

BH9: Total Coliforms was recorded above the IGV (0cfu/100ml) during the annual monitoring event in January (34.1 MPN/100ml). All other results were observed below the GAC.

BH10: Total Coliforms were recorded above the IGV (0cfu/100ml) during the annual monitoring event in January 2017 (218.7 MPN/100ml). All other results were observed below the GAC.

BH11: All results were observed below the GAC.

BH12: All results were observed below the GAC.

BH13: There was an exceedance of total ammonia as N (GAC - 0.175mg/l) during the May monitoring event (0.25mg/l). All other results were observed below the GAC.

BH14: All results were observed below the GAC.

BHA: The concentration of total ammonia as N exceeded the GAC (0.175mg/l) in January (0.18mg/l). There were also exceedances of total ammonia as N during the May (0.34mg/l), June (0.24mg/l), July (0.3mg/l), August (0.19mg/l) and September (0.21mg/l) monitoring events. All other results were observed below the GAC.

BH Bally: Total Coliforms were recorded above the IGV (0cfu/100ml) during the annual monitoring event in January 2017 (38.6MPN/100ml). The concentration of total ammonia as N exceeded the GAC (0.175mg/l) during the July (0.19mg/l) monitoring event. All other results were observed below the GAC.

3.2 Storm Water Emissions and Monitoring

The waste licence stipulates three monitoring locations for storm water discharges:

- SW1 (outlet from Pond C)
- SW2 (internal discharge in to the new pond)
- Discharge from Interceptor

The surface water runoff from the hardstanding areas at the entrance to the Site is directed via a number of silt settling tanks to the on-site oil/water interceptor located at the Site entrance. The oil/water interceptor discharges into the existing Pond C. As required water will be pumped from Pond C to be recovered and reused in the on-site wheelwash. Excess water in Pond C will be tested and if suitable discharged into the small stream (River Morell) running along the eastern boundary of the Site. It is noted that the discharge from Pond C to the River Morell is regulated by a shut-off valve. This shut-off valve will remain locked and closed at all times, and will only be opened under the supervision of the Facility Manager.

There was no discharge from Pond C into River Morell during 2017. Location SW2 does not yet exist.

Storm water samples were analysed according to Schedule C.4 of the Licence. During the monitoring period storm water monitoring was undertaken only at location 'Discharge from Interceptor'. A full list of parameters and the monitoring frequency are listed in Table 3-4.

The sample was taken as a grab sample with a sample pole, decanted to the appropriate containers, kept cool, in darkness and sent to an accredited laboratory for analysis.

Field parameters for pH, dissolved oxygen and electrical conductivity were recorded using calibrated equipment together with observations on the physical appearance of the samples.

Table 3-4: Storm water monitoring parameters as of Schedule C.4.

Parameter	Monitoring Frequency
Visual inspection	Daily
Ammonia	Monthly
Total Organic Carbon (TOC)	Monthly
Suspended solids (SS)	Monthly
Mineral oils	Quarterly
Dissolved metals	Annually
Hazardous substances	Annually
List I/II Organic substances	Annually

Furthermore the storm water Emission Limit Value (ELV) for discharge into the Morell River (location SW1) are set out for Suspended Solids in Schedule B.2.2 of the licence (W0254-01) and are presented in Table 3-5.

Table 3-5: Storm Water Limits at Walshestown.

Storm Water Emissions	
Parameter	**Emission Limit Value (mg/l)**
Suspended Solids	25

3.2.1 Assessment Criteria

Storm water samples were compared, where applicable, to the following surface water assessment criteria (referred to hereafter as SWAC):

- Surface Water Regulations 2009 (SI No. 272 of 2009) as amended (S.I. No. 372 of 2012 and S.I. No. 386 of 2015.

3.2.2 Storm Water Quality Results and Discussion

A summary of the concentrations for the monthly parameters (Ammonia, TOC and SS) recorded during 2017 have been presented in Figure 5 to Figure 7 below. It is noted that the ELV for Suspended Solids does not apply for location 'Discharge from Interceptor', but the limit has been included in the Figure 7 for comparison purposes.

Figure 5: Total Ammonia as NH_3 in Storm water during 2017

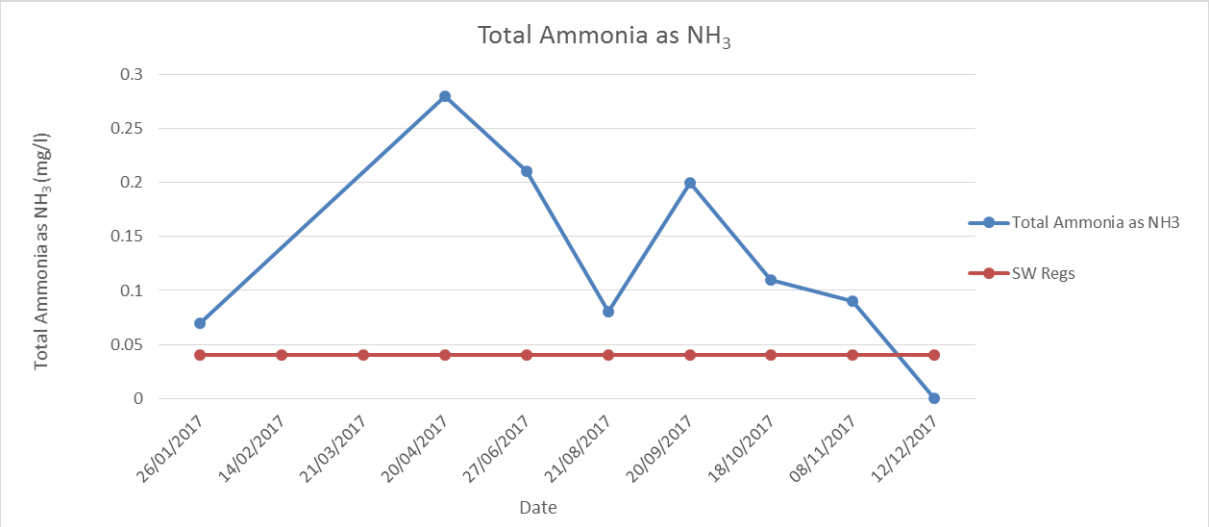


Figure 6: Total Organic Carbon in Storm water during 2017

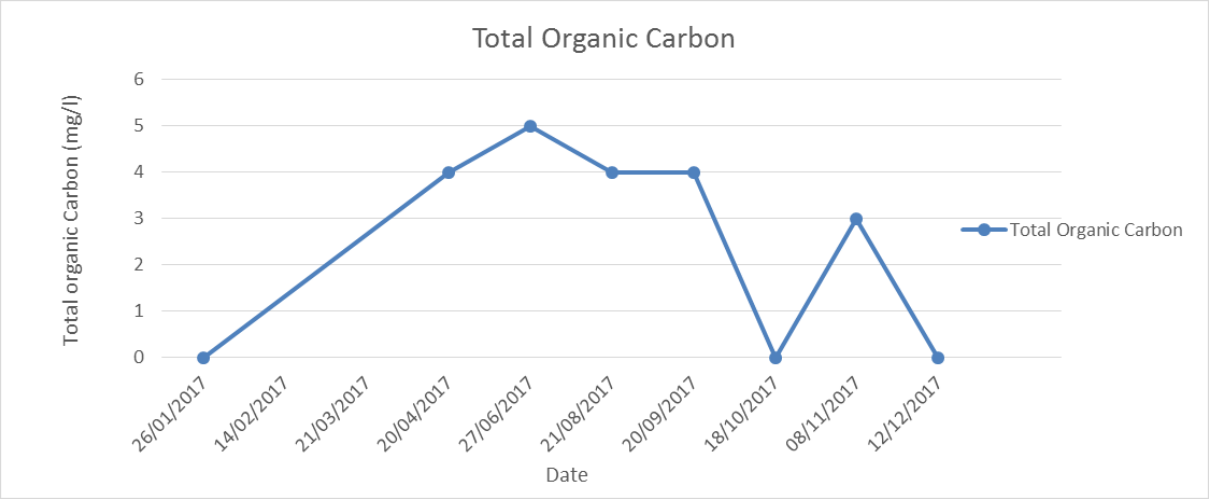
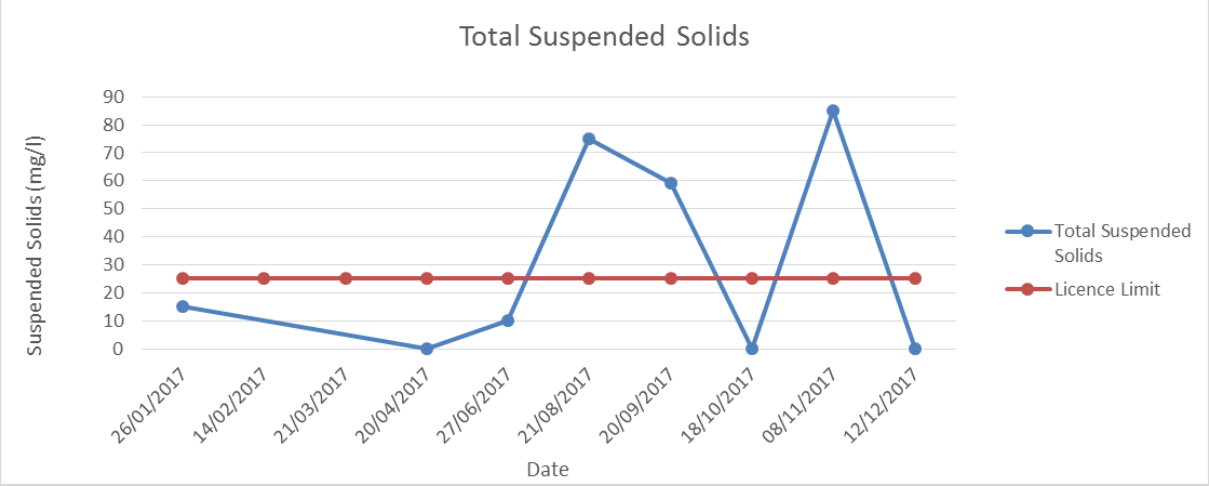


Figure 7: Total Suspended Solids in Storm water during 2017



The storm water quality at the Site has been stable over the year (2017) for majority of the parameters measured. During February and March monitoring events there was no flow through the discharge point and no sample could be retrieved.

A summary of the storm water quality at the interceptor is given below.

- Concentrations of Total Ammonia as NH3 recorded at the interceptor ranged from 0.07mg/l (January 2017) to 0.28mg/l (April 2017);
- Concentrations of Total Organic Carbon (TOC) recorded at the interceptor ranged from <2mg/l (January and October 2017) to 5mg/l (June 2017). There is no SWAC value for TOC. The TOC concentrations were below the Method Detection Limit (MDLs);
- Concentrations of Suspended Solids (SS) recorded at the interceptor ranged from <10mg/l (April and October 2017) to 85mg/l (November 2017). There is no SWAC value for SS;
- Mineral Oil concentrations at the interceptor were measured in a quarterly basis. There are no surface water regulation value for mineral oil, however, the concentrations were within the MDLs (<10ug/l) at every monitoring event.
- Concentrations for all other parameters (i.e. dissolved metals, electrical conductivity, pH, etc) were within the relevant SWAC or below the MDLs; and,
- There was no detection of pesticides, EPH, GRO, sVOCs and VOCs at the interceptor, which are measured annually. The concentrations for those parameters were within the relevant SWAC or below the MDLs.

3.3 Noise Emissions and Monitoring

Noise measurements were taken at six (6 No) locations (N1, N2, N3, N4, N5 and N6), refer to Drawing 1 (Appendix B). Refer to Table 3-6 and Table 3-7 for the waste licence requirements in regards to noise monitoring at the Site.

Table 3-6: Noise Emission Limits at Walshestown

Noise Emissions			
Daytime dB $L_{Ar,T}$ (30 minutes)	**Evening dB $L_{Ar,T}$ (30 minutes)**	**Night dB $L_{Aeq,T}$ (15-30 minutes)**	**Frequency**
55 Note 1	50 Note 1	45 Note 1	Quarterly

Note 1: There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise-sensitive location.

Table 3-7: Noise Monitoring Location

Noise Monitoring Location	Status	Measurement
N1 Northern Boundary	Boundary Location	Daytime dB $L_{Ar,T}$ (30 minutes) Evening dB $L_{Ar,T}$ (30 minutes)
N2 Adjacent to the Site Entrance	Noise Sensitive Location	

N3 Eastern Boundary	Boundary Location	Night-time dB $L_{Aeq,T}$ (15-30 minutes)
N4 South-eastern Boundary	Boundary Location	
N5 South-western Boundary	Boundary Location	
N6 Western Boundary	Boundary Location	

3.3.1 Noise Monitoring Results and Discussion

Noise monitoring was conducted quarterly at the Site during 2017 in compliance with the licence conditions on the following dates:

- Quarter 1: 29th and 30th March 2017
- Quarter 2: 19th June 2017
- Quarter 3: 8th August 2017
- Quarter 4: 2nd November 2017

During Quarter 1 day, evening and night noise monitoring was conducted on site. Daytime noise monitoring was conducted during Quarters 2, 3 and 4. A summary of the noise monitoring results is given below with a summary results chart shown in Figure 8.

- No activities were conducted on Site after 7pm or before 7am in 2017. There are no 24 hour operational fixed plant on Site, therefore no noise emissions occurred during the evening (7pm to 11pm) or night-time (11pm to 7am) time periods.

- There were no exceedances reported at N1 in 2017. The $L_{Aeq,T}$ was recorded at 55dB in Quarter 1 and Quarter 3.

- Two exceedances were reported at N2 during Quarter 1 (day time), with $L_{Aeq,T}$ of 58dB recorded.

- There were no exceedances reported at N3 in 2017. The $L_{Aeq,T}$ for daytime period peaked at 49dB in both Quarter 1 and Quarter 3.

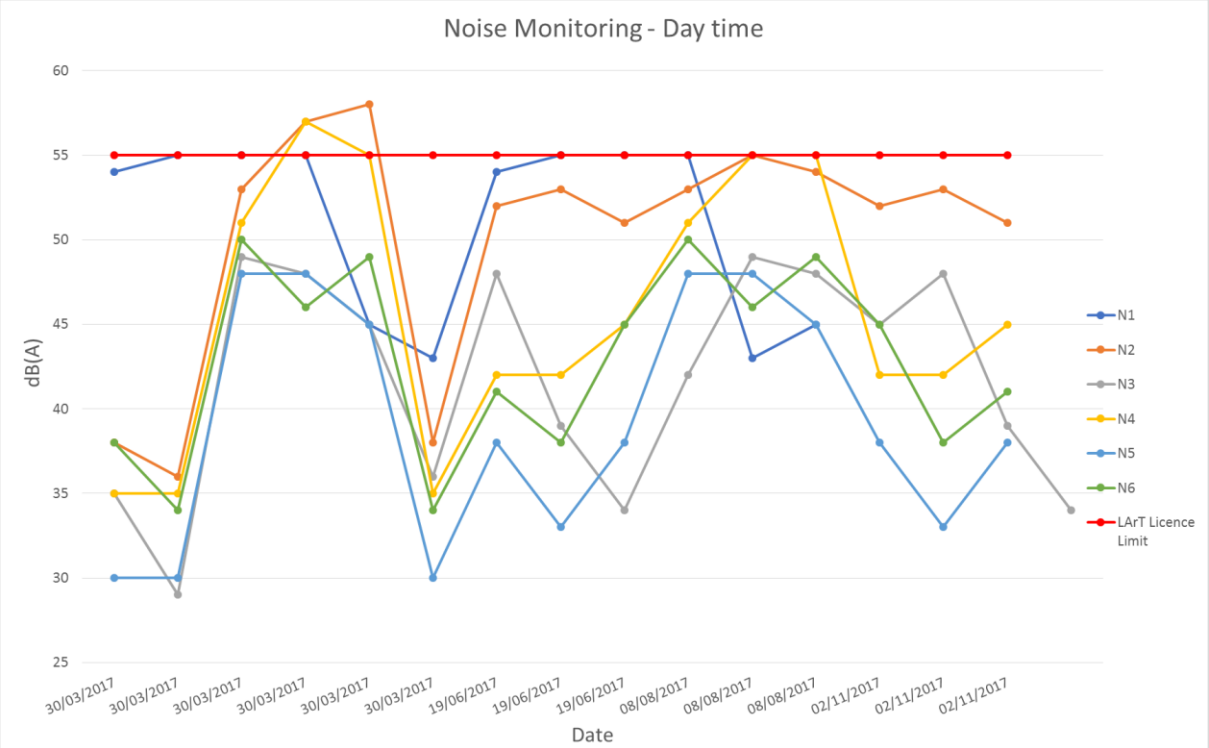
- One exceedance was reported at N4 during Quarter 1. The exceedances were recorded at $L_{Aeq,T}$ 57dB.

- There were no exceedances reported at N5 in 2017. The $L_{Aeq,T}$ was recorded at 48dB in Quarter 1 and Quarter 3.

- There were no exceedances reported at N6 in 2017. The $L_{Aeq,T}$ was recoded at 50dB(A) during Quarter 1 and Quarter 3.

Noise Monitoring during 2017 identified moving traffic on the local road and dogs barking nearby as typical noise sources. The construction stages and operations stage of the Site are not having a negative impact on the nearest receptors.

Figure 8 Noise Monitoring 2017 – Day time



3.4 Dust Emissions and Monitoring

Dust emissions monitoring was undertaken monthly at the Site during 2017, refer to Figure 9 and Table 3-8 for inorganic and organic dust deposition summary. Refer to Drawing 1 (Appendix B) for dust monitoring locations. The licence limit for the depositional dust is set at 350mg/m^2/day, specified in Table B.5 of the license.

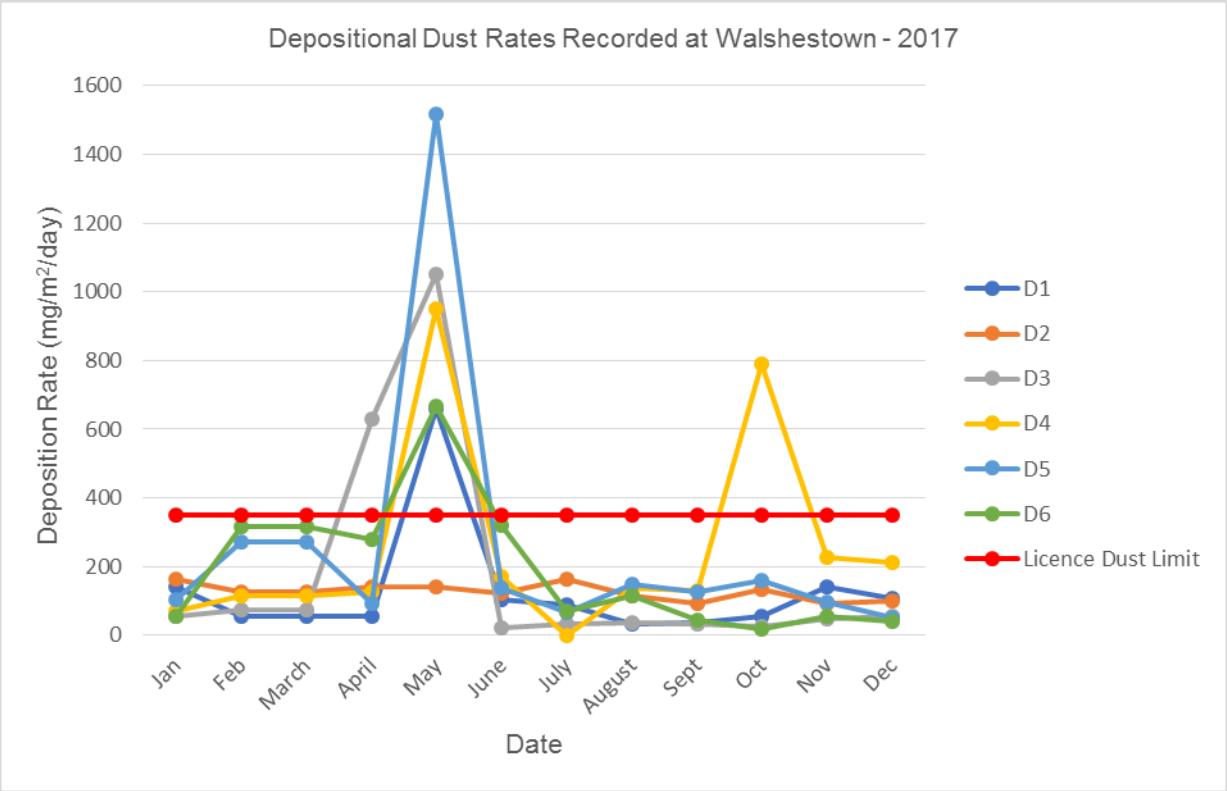
Table 3-8: Dust Deposition Results (Monthly) - 2017

Year	**Organic & Inorganic Deposition Results (mg/m²/day)**											
2017	**D1**		**D2**		**D3**		**D4**		**D5**		**D6**	
	Organic	**Inorganic**	**Organic**	**Inorganic**	**Organic**	**Inorganic**	**Organic**	**Inorganic**	**Organic**	**Inorganic**	**Organic**	**Inorganic**
January	140		163		57		70		103		54	
February	56		125		74		115		270		318	
March	56		125		74		115		270		318	
April	55		141		630		128		90		281	
May	659		141		1050		950		1519		666	
June	145	103	84	124	159	21	439	170	255	139	499	321
July	185	90	72	165	62	32	20	1	143	66	222	70
August	68	32	142	115	86	38	464	136	421	150	79	116
September	42	36	29	94	45	34	358	129	225	128	172	45
October	58	57	30	134	75	25	1391	789	304	160	27	19
November	117	143	46	94	33	49	452	228	95	95	25	54
December	75	108	54	101	59	54	113	211	41	50	16	39
Average		**128**		**127**		**178**		**254**		**253**		**192**

Note: Exceedances of the limit value of 350mg/m²/day

The dust monitoring results for 2017 are shown graphically on Figure 9 below.

Figure 9: Depositional Dust Monthly Results during 2017



The average dust values ranged from 127mg/m^2/day at D2 to 254mg/m^2/day at D4. The licence limit (350mg/m^2/day) was exceeded at D1 (May 2017), D3 (April 2017 and May 2017), D4 (May 2017 and October 2017), D5 (May 2017) and D6 (May 2017).

After the exceedances of the May 2017 event, a decision was made by the Facility Manager that all future dust samples should be analysed for organic and inorganic deposition levels, in addition to the total dust depositions levels. The outcome of this additional analysis ties in with the assumption that there is a direct link between the exceedances at locations D4, D5 and D6 and the location of the dust stands i.e. the overhanging trees, hedgerows and surrounding vegetation are impacting upon the results obtained at these three locations.

It is proposed to relocate stations D4, D5 and D6 in order to reduce the impact that vegetation, trees and shrubs along the boundary locations are having on the monthly results. Details of the proposed new locations will be submitted to the Agency by the end of April 2018.

4.0 RESOURCE AND ENERGY CONSUMPTION - 2017

A summary of the energy and resource usage at the Site for 2017 is presented in Table 4-1 below.

Table 4-1: Energy Efficiency and Resource Usage Summary 2017

RESOURCE /ENERGY SOURCE	PERIOD	UNIT	ESTIMATED QUANTITY USED 2017
Water	1st Jan 2017-31st Dec 2017	m^3	274
Electricity	1st Jan 2017-31st Dec 2017	kWh	42,500
Diesel	1st Jan 2017-31st Dec 2017	Litres	245,000
Any other fuel usage	1st Jan 2017-31st Dec 2017	Litres	Antifreeze 440 Rubia tir 840 Hydraulic 1,800 Ad Blue 1,036 Dynatrans 416 HDP 200 Tractelf 200

5.0 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

The EMS has been prepared in compliance with Condition 2.2 of the licence and is updated annually. The following sections provide a summary of the schedule for proposed Objectives and Targets for 2018 and a summary of completed and proposed future facility infrastructure development works.

5.1 Schedule of Objectives and Targets

A review on the Schedule of Environmental Objectives and Targets within the Environmental Management System (EMS) will be undertaken annually.

A summary of the objectives and targets set out for the Site to be undertaken during 2018 are included in Table 5-1 below.

Table 5-1: Schedule of Objectives and Targets for 2018 – Summary.

No	Objective	Target	Actions (2018)	Target Completion Date	Status	Responsibility
1	Licence compliance	Review Licence compliance and ensure all on-site personnel are trained on the requirements of the Waste Licence	Carry out review of Licence conditions and train on-site personnel	December 2018	Ongoing	Facility Manager
2	Develop Onsite Procedures for the Waste Processing Area	Prepare and implement a set of procedures and records for the processing area.	Submit to the EPA	April 2018	Ongoing	Facility Manager & Independent Consultant
3	Environmental Awareness	Understanding of Waste Acceptance Procedures and Emergency Procedures	Update training on-site personnel to identify non-acceptable wastes and actions to take in the event of an emergency	April 2018	Ongoing	Facility Manager
4	Health & Safety	Safety training for the site personnel.	Establish safety training matrix for all site personnel, and provide any necessary training	Ongoing	Completed, however, reviews often required following addition of on-site personnel	Health & Safety Officer
5	Operations and processes	Review all operations and processes with a view to reducing energy and resource use.	Carry out a review of all operations and processes following start-up. Record resource usage in order to set targets	December 2018	Ongoing	Facility Manager/Deputy Manager

6	Dust Monitoring	Relocate Dust monitoring stations affected by organic matter from boundary ditches.	Submit to the EPA	April 2018	Ongoing	Facility Manager/Deputy Manager

5.2 Development/Infrastructural Works Summary

The following development works were completed during 2017:

- Lining of Cells 1A1 and 1A2;
- Construction of internal site roadways from site entrance to weighbridge;
- Construction of Waste Processing Area;
- Construction of Waste Inspection Bay and Waste Quarantine Bay;
- Installation of new monitoring boreholes; and,
- Installation of silt fences to protect surface water stream.

The proposed development works for 2018 comprise the following:

- Construction of Cell 1B and preparation of sub-lining for Cell 2;
- Construction of the Final cap for Cell 1A;
- Continuing restoration of the facility; and,
- Construction of surface water management infrastructure by constructing the new Pond D and filling in Ponds A1, A2 and A3.

6.0 FINANCIAL PROVISION

The Waste Licence holder was charged €543.00 in 2017 by the Environmental Protection Agency for the services they provide to oversee the Waste Licence.

The amounts for the financial provision were agreed with the EPA in 2016. The following Table 6-1 shows the details.

Table 6-1: Financial Provision

Liability Type	Description	Amount of Provision (€)	Financial Instrument
CRAMP (Closure) – Known Liability	Planned Liabilities that will arise upon closure of the facility.	€1,572,692.00	Secured Fund
Restoration and Aftercare Management – Known Liability	Planned liabilities that will arise upon restoration and aftercare management of the facility – Environmental Monitoring for a period of 5 years.	€181,500.00	Secured Fund
ELRA (incidents e.g. fuel spillage) – Unknown Liability	Unplanned liabilities that have the potential to arise during the operational life of the facility.	€189,098.00	Environmental Liability Insurance Policy
TOTAL		**€1,754,192.00**	

7.0 INCIDENTS AND COMPLAINTS SUMMARY – 2017

7.1 Complaints Summary

Under the Condition 11 (Notification, Records and Reports), section 11.5, environmental complaints related to the operation of the Site should be recorded, refer to Table 7-1 below.

Table 7-1: Complaints Summary 2017

Date/Time	Name of the Complaint	Nature of the Complaint	Response Details to the Complaint
22nd March 2017 13.50 Hrs	[redacted], [redacted]	Noise	Ref WRL2017001
24th March 2017 14.36 Hrs	[redacted]	Dirt on road	Ref WRL2017002
15th August 2017 09.28 Hrs	[redacted]	Trucks travelling too fast on local road.	Ref WRL2017003
13th December 2017 11.33 hrs	[redacted]	Rejected loads	Ref WRL2017004

7.2 Reported Incidents Summary

Under the Condition 11 (Notification, Records and Reports), section 11.4, the licensee should record and submit the incident to the Agency, refer to Table 7-2 below.

Table 7-2: Incidents Summary 2017

Nature of the Incident	Extend of the Incident	Impact and Circumstances of the Incident	Corrective Actions
No incidents.	-	-	-

8.0 MANAGEMENT AND STAFFING STRUCTURE

8.1 Facility Management Structure

According to Condition 2, section 2.1.1, an experienced facility manager should be in charge of the facility and be present during the operation times.

The current staff structure at the Site is presented below in Table 8-1.

Table 8-1: Staff Structure Summary

Name of Employee	Position
Mervyn Ross	Facility Manager
Violet McDaid	Weighbridge Operator
Harry Murphy	Landfill Foreman
Kieran O'Neill	Site Foreman
Sabrina Puri	Office Administrator

8.2 Staff Training Records 2017

The on-going training courses provided to the staff members during 2017 is detailed below in Table 8-2.

Table 8-2: Staff Training Records

Training Course	Mervyn Ross	Harry Murphy	Kieran O'Neill	Violet McDaid	Andy Nolen	Sabrina Puri	Slawomir Butkiewicz	Josep O'Neill	Damien O' Keeffe	John Adams	Barry Eustace	John Kavanagh
Waste Licence Conditions	X	X	X	X	X	X	X	X	X	X	X	X
Waste Acceptance Procedures	X	X		X	X			X			X	
Emergency Response Procedures	X	X	X	X	X	X	X	X	X	X	X	X
Manual Handling	X	X	X	X	X	X	X	X	X	X	X	X
Safe Pass	X	X	X	X	X	X	X	X	X	X	X	X
Plant Operator Training		X	X				X	X	X	X	X	X
PPE	X	X	X	X	X	X	X	X	X	X	X	X
Weighbridge Operations	X			X	X	X				X		
1st Aid Training				X								

8.3 Report on the Programme for Public Information

A Communications Programme was developed for the Site in 2016. The specific objectives of this programme are as follows:

- To ensure that the general public is aware how to contact the site and company management,
- To encourage liaison between WRL, local residents and those who may be affected by the site's operations,
- To make available Environmental Performance Data relating to the WRL facility at reasonable times; and,
- The Communications Programme focuses on ensuring that the general public knows how to access relevant information, facilitate personal contact with the site management and facilitate site visits.

9.0 POLLUTION EMISSION TRANSFER REGISTER (PRTR)

PRTR is not required at the Walshestown facility as part of the Annual Environmental Report as the facility is an inert landfill.

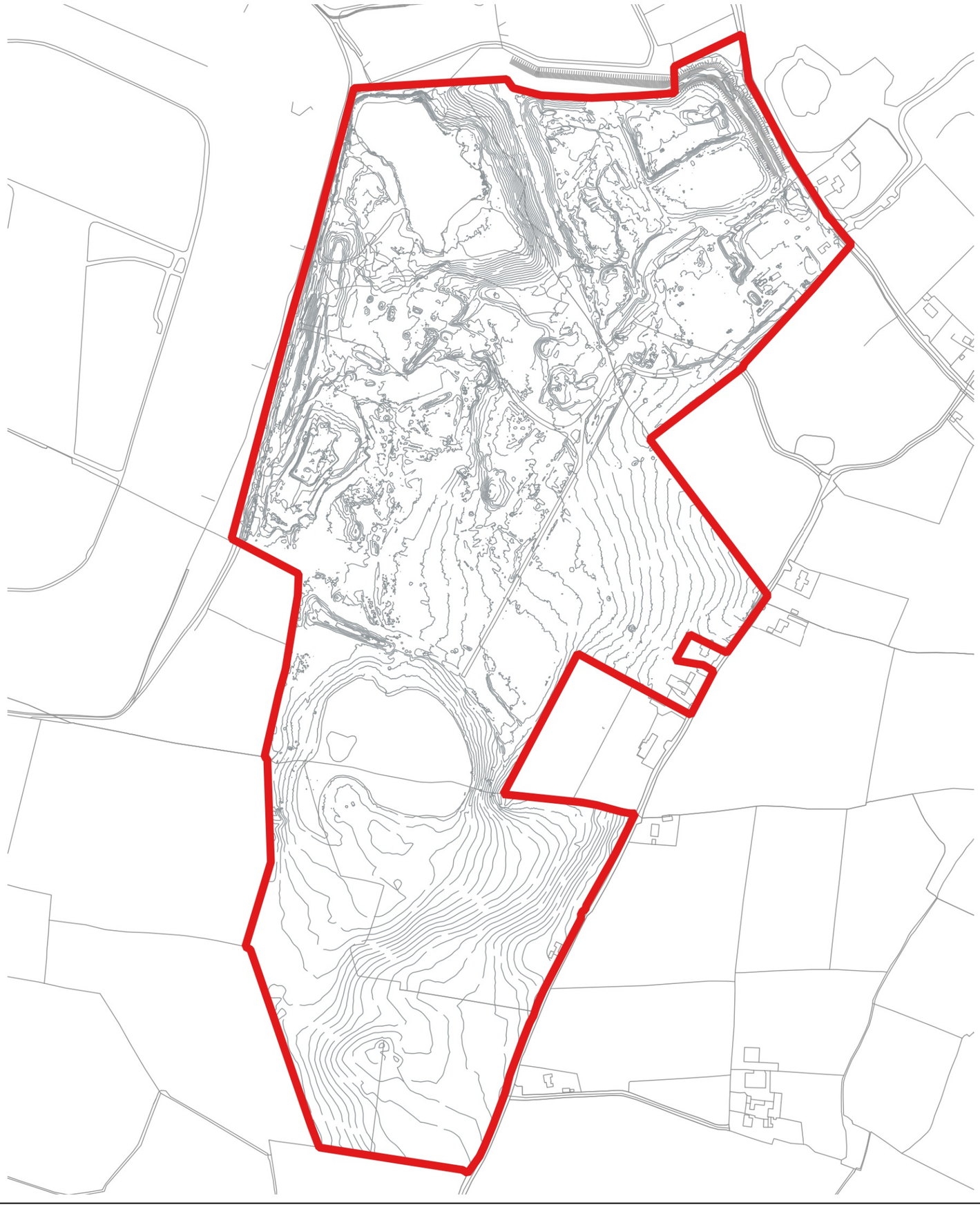
10.0 ANY OTHER ITEMS SPECIFIED BY THE AGENCY

10.1 Stability Assessment

A preliminary Stability Assessment was carried out during Quarter 3 of the reporting period by a chartered MOR engineer. The findings of the assessment were recorded and recommendations discussed with the facility management.

Appendices

Appendix A



Legend

- 6 West Survey Jan '18 (mOD)
- Ordnance Survey
- Site Boundary

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W E

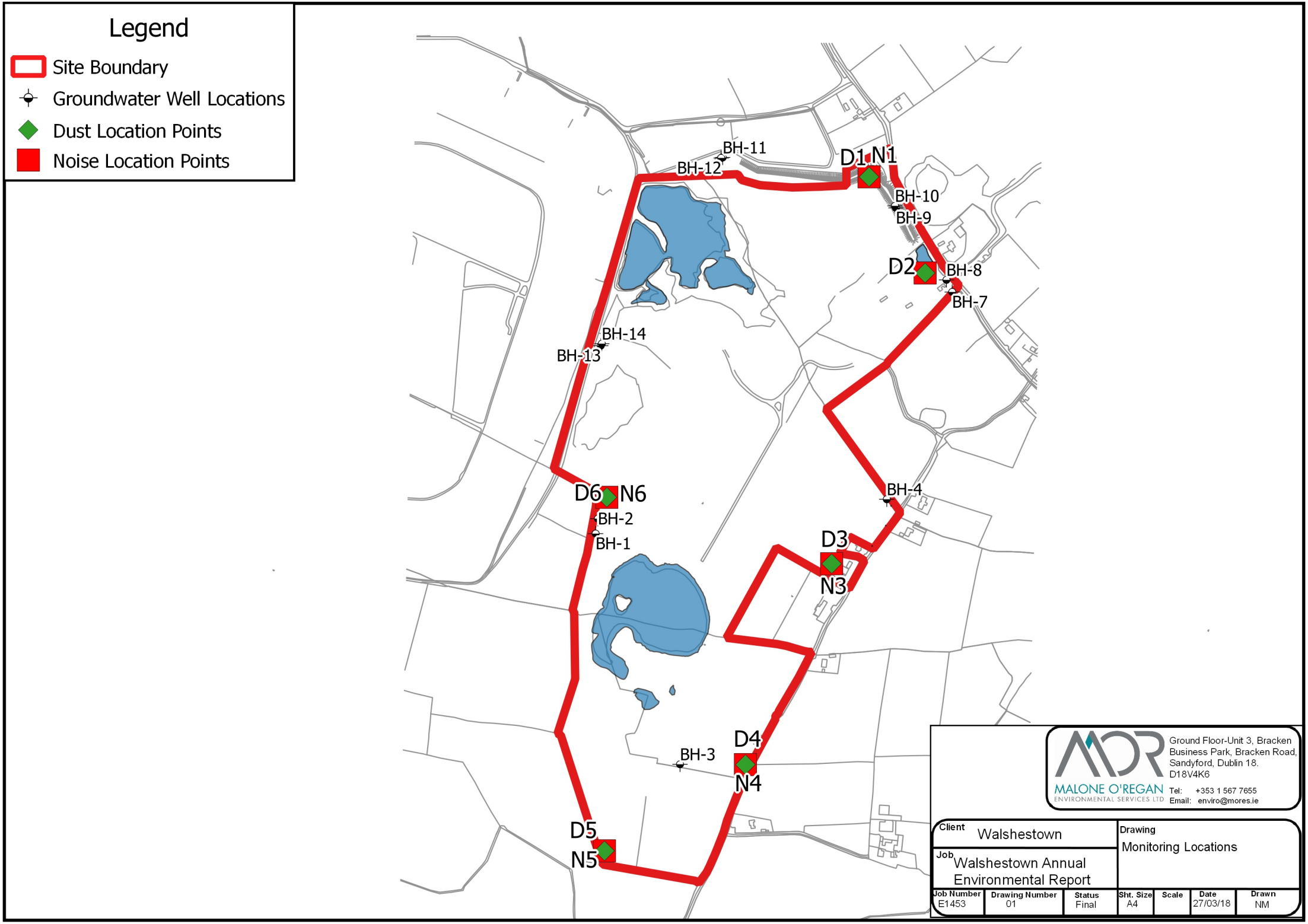
S

MALONE O'REGAN ENVIRONMENTAL SERVICES LTD
Ground Floor-Unit 3, Bracken Business Park, Bracken Road, Sandyford, Dublin 18. D18V4K6
Tel: +353 1 567 7655
Email: enviro@mores.ie

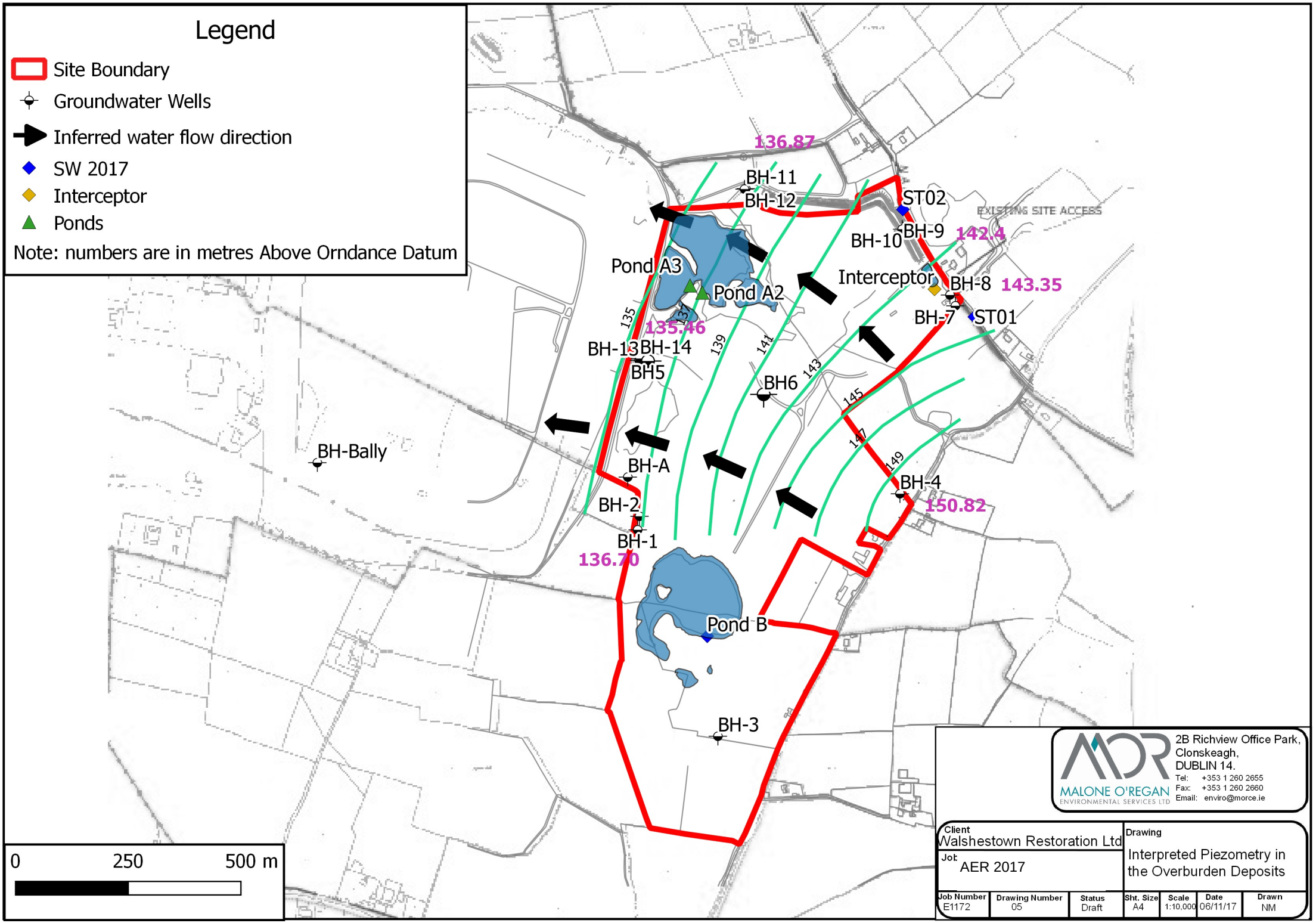
Client: Walshestown	Drawing: Topographical Survey 1m Contours 2018
Job: Walshestown Annual Environmental Report	

Job Number	Drawing Number	Status	Sht. Size	Scale	Date	Drawn
E1453	02	Final	A3	1:5,500	27/03/18	KG

Appendix B


Legend
Site Boundary
Groundwater Well Locations
Dust Location Points
Noise Location Points
BH-11
BH-12
D1 N1
BH-10
BH-9
D2
BH-8
BH-7
BH-14
BH-13
D6 N6
BH-2
BH-1
BH-4
D3
N3
D4
N4
BH-3
D5
N5
MALONE O'REGAN ENVIRONMENTAL SERVICES LTD
Ground Floor-Unit 3, Bracken Business Park, Bracken Road, Sandyford, Dublin 18. D18V4K6
Tel: +353 1 567 7655
Email: enviro@mores.ie
Client
Walshestown
Drawing
Monitoring Locations
Job
Walshestown Annual Environmental Report
Job Number
E1453
Drawing Number
01
Status
Final
Sht. Size
A4
Scale
Date
27/03/18
Drawn
NM

APPENDIX C


Legend
Site Boundary
Groundwater Wells
Inferred water flow direction
SW 2017
Interceptor
Ponds
Note: numbers are in metres Above Orndance Datum
136.87
BH-11
BH-12
ST02
EXISTING SITE ACCESS
BH-9
142.4
BH-10
Pond A3
Pond A2
Interceptor
BH-8
143.35
BH-7
ST01
135
137
135.46
BH-13
BH-14
BH5
139
141
BH6
143
145
147
149
BH-4
150.82
BH-Bally
BH-A
BH-2
BH-1
136.70
Pond B
BH-3
0
250
500 m
MALONE O'REGAN
ENVIRONMENTAL SERVICES LTD
2B Richview Office Park,
Clonskeagh,
DUBLIN 14.
Tel: +353 1 260 2655
Fax: +353 1 260 2660
Email: enviro@morce.ie
Client
Walshestown Restoration Ltd
Jot
AER 2017
Drawing
Interpreted Piezometry in the Overburden Deposits
Job Number
E1172
Drawing Number
05
Status
Draft
Sht. Size
A4
Scale
1:10,000
Date
06/11/17
Drawn
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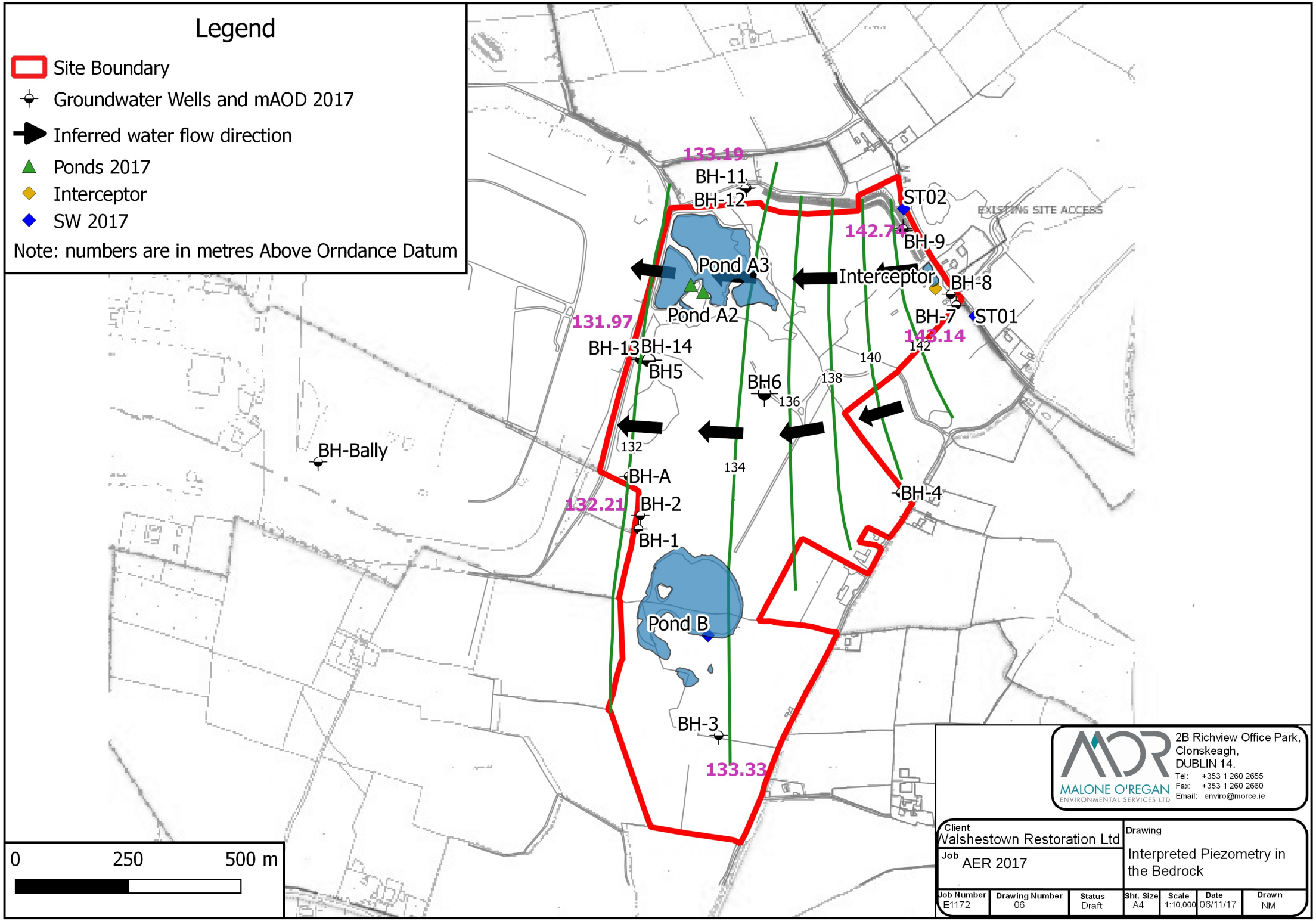
Legend
Site Boundary
Groundwater Wells and mAOD 2017
Inferred water flow direction
Ponds 2017
Interceptor
SW 2017
Note: numbers are in metres Above Orndance Datum
133.19
BH-11
BH-12
ST02
EXISTING SITE ACCESS
142.74
BH-9
Pond A3
Interceptor
BH-8
Pond A2
131.97
BH-7
ST01
143.14
BH-13
BH-14
BH5
142
140
BH6
138
136
BH-Bally
132
134
BH-A
BH-4
132.21
BH-2
BH-1
Pond B
BH-3
133.33
0
250
500 m
MALONE O'REGAN ENVIRONMENTAL SERVICES LTD
2B Richview Office Park,
Clonskeagh,
DUBLIN 14.
Tel: +353 1 260 2655
Fax: +353 1 260 2660
Email: enviro@morce.ie
Client
Walshestown Restoration Ltd
Job
AER 2017
Drawing
Interpreted Piezometry in the Bedrock
Job Number
E1172
Drawing Number
06
Status
Draft
Sht. Size
A4
Scale
1:10,000
Date
06/11/17
Drawn
NM