

ATTACHMENT E2 – EMISSIONS TO SURFACE WATER

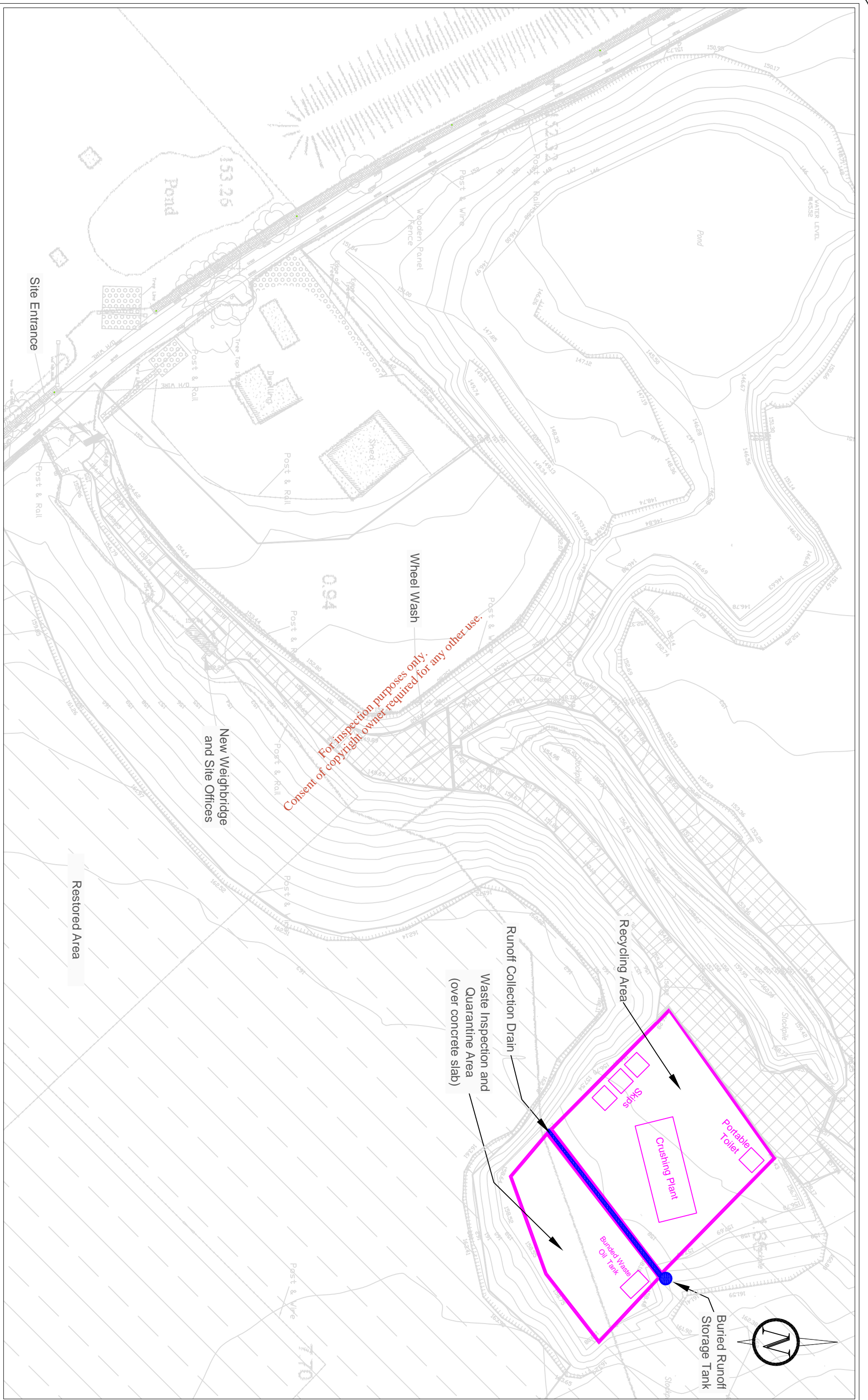
The nearest watercourse to the application site is the River Morell, which is a tributary of the River Liffey, and located within the Eastern Liffey River Basin District. The River Morell runs parallel to the local road to the south and west of the application site. There are no other surface watercourses within the site boundary or in the immediate vicinity.

All existing water features within the application site are considered to be groundwater features. Meteoric water falling over existing and/or future landforms at the application site will either run over the surface to groundwater ponds forming in closed depressions within the site or will percolate through backfilled and/or natural soil to the underlying groundwater table.

There have been no emissions to watercourses or ponds beyond the boundary of the application site in undertaking site restoration works to date. At no time during the future restoration works will surface water run-off be directed to the River Morell or any watercourses or ponds beyond the site boundary.

With the exception of the sealed concrete slab at the waste inspection and quarantine area, it is not intended to provide any site drainage infrastructure to collect and remove surface water run-off at the application site. The temporary waste inspection and quarantine area, will be sealed by a 100mm thick reinforced concrete slab over 150mm of granular sub-base and bunded to a design storm volume. Any surface water running over the surface of the concrete slab will be directed toward buried storage tanks with double skin protection located on the western side of the hardstanding / recycling area indicated on Figure E2.1. Surface water will only be collected in the buried tanks when suspect waste consignments are stored at the quarantine facility. Any wastewater collected in the buried tanks will be emptied by licensed waste collectors and transferred to a collection tanker for disposal off-site at an approved waste water treatment facility.

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 NAAS, CO. KILDARE

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LEGEND & NOTES:
 [Pink Outline] Hardstanding Area

Rev.	Date	By	Description
1	FEB 08	MK	
0	FEB 08	LMC	

Site:	LANDS AT BLACKHALL, CO. KILDARE
Project:	RESTORATION OF FORMER GRAVEL PIT
Title:	SURFACE WATER COLLECTION
Drawn:	MK
Job. No.:	3746
Scale:	1:1000
Date:	March 2008

FIGURE E2.1

ATTACHMENT E4 – EMISSIONS TO GROUNDWATER

All existing water features within the application site are considered to be groundwater features. All meteoric water falling over existing and/or future landforms at the application site will either run over the surface to groundwater ponds forming in closed depressions within the site or will percolate through backfilled and/or natural soil to the underlying groundwater table.

Groundwater in the gravel aquifer has been intercepted by the former quarry workings and is evidenced by a spring in the quarry floor below the electricity pylon in the north-eastern corner of the site. Groundwater emerging at this spring is collected by a buried drainage pipe and discharged to the groundwater pond over the quarry floor in the northern part of the site varies seasonally. A closed depression in the south-western corner of the site also intercepts the groundwater table at its base, giving rise to a pond feature. The location and extent of existing groundwater ponds within the application site is shown on Figure E4.1

Available groundwater test data indicates that there is no disparity between groundwater quality of samples recovered at the upgradient and downgradient end of the application site. This suggests that historical and/or ongoing site operations have had no adverse impact on groundwater quality.

As the restoration of the former gravel quarry at Blackhall entails placement and backfilling using only inert soil and recycled construction and demolition wastes, no leachate will be generated by percolation of rainfall through the backfilled and/or natural ground. Consequently, there is no requirement for a lining system or leachate collection system at this waste facility.

At each phase of the proposed restoration works, the backfilled ground surface will be graded so as to ensure surface water run-off falls toward a local low point. In order to prevent high concentrations of suspended solids entering existing groundwater ponds, intermediate temporary surface water ponds will be constructed to hold any surface water run off from the active backfill area. These temporary ponds will encourage settling out of suspended solids and control discharge to groundwater ponds at a lower level. During the development and operation of the site, there is a small risk of groundwater pollution from the following potential sources:

- accidental spillage of fuels and lubricants by construction plant placing the inert fill and other operational procedures;
- increase in suspended solids and potential for contaminated runoff entering groundwater during development of the site; and
- rogue loads of contaminated material being deposited at the site.

In order to minimise the risk of pollution to groundwater occurring during the site restoration works, a number of mitigation measures are proposed. These measures give effect to Council Directive 80/68/EEC on the protection of groundwater against pollution and are outlined in Section 6.4.1 of the Environmental Impact Statement.

The engineering works associated with the spring discharge are proposed to comprise the following:

- granular fill of 40mm single sized granular material will be placed with a thickness of 600mm above the existing 300mm concrete pipe and will be separated from the inert waste by means of a geotextile protector;
- a new 300mm concrete pipe will be connected to the existing pipe and will be placed within a trench in the in-situ sand and gravels deposits. The pipe will have a granular surround of 40mm. This will in turn be separated from the in-situ soils by a geotextile separator;
- the join will form a 90 degree bend encased in a concrete thrust block with 400mm gravel surround and a geotextile separator to prevent leakage in or out;
- the new drainage trench and concrete pipe will be directed to a soakaway (10m by 10m) to discharge directly into insitu sand and gravel deposits;
- the soakaway will be partially constructed within the in-situ sands and gravels and will extend below the groundwater level. The base of the soakaway will be laid with 100mm single sized granular material or similar approved grading. The geotextile separator which is placed below the concrete pipe will continue and will be placed in the soakaway

above the 100mm single sized granular material and below the 40mm single size granular material which forms most of the soakaway.

- the concrete pipe will allow discharge of the spring water into this granular material and above the groundwater table in the soakaway.

These proposed engineering measures are presented as Figure E4.2.

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TABLE E.4.1 EMISSIONS TO GROUNDWATER

Emission Point or Area:

Emission Point / Area Ref. N ^o :	SA1
Emission Pathway: (borehole, well, percolation area, soakaway, landspreading, etc.)	Soakaway
Location	Northern Quarry Area
Grid Ref.(10 digit, 5E,5N):	
Elevation of discharge: (relative to Ordnance Datum)	Approx 148-149mOD (seasonal variation)
Aquifer classification for receiving groundwater body	Locally Important Aquifer
Groundwater vulnerability assessment (including vulnerability rating)	High Vulnerability
Identity and proximity of groundwater sources at risk (wells, springs, etc)	Well 1 at 140m upgradient / sidelong Well 2 45m upgradient
Identity and proximity of surface water bodies at risk	No connected watercourses in immediate area

Emission Details

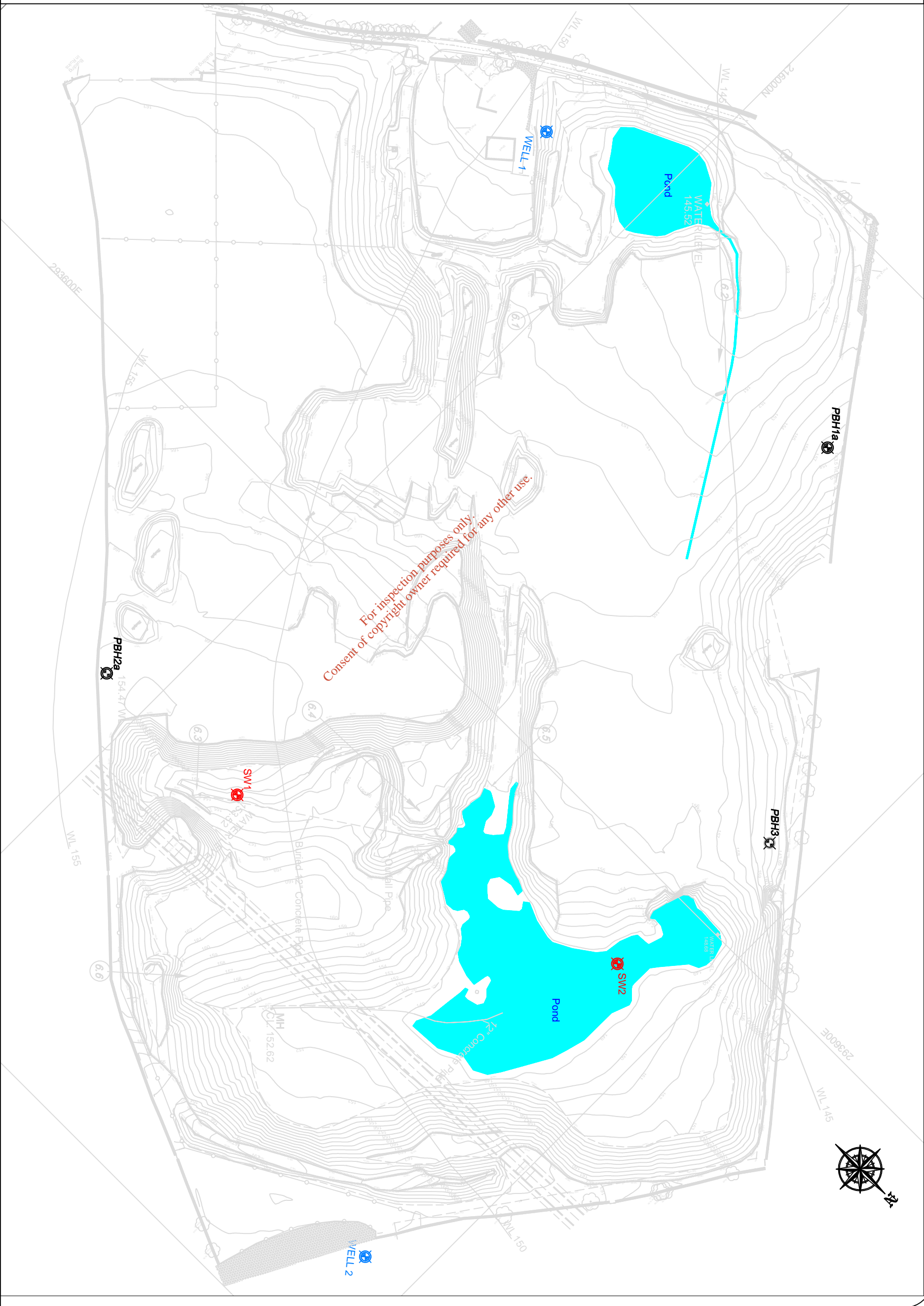
(i) Volume to be emitted			
Normal/day	1,550 m ³	Maximum/day	33,600 m ³
Maximum rate/hour	1,400 m ³		

Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (*start-up /shutdown to be included*):

Periods of Emission (avg)	60 min/hr 24 hr/day 365 day/yr
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Legend

-  Groundwater Monitoring
-  Surface Water Monitoring
-  2007 Borehole / Monitoring Well



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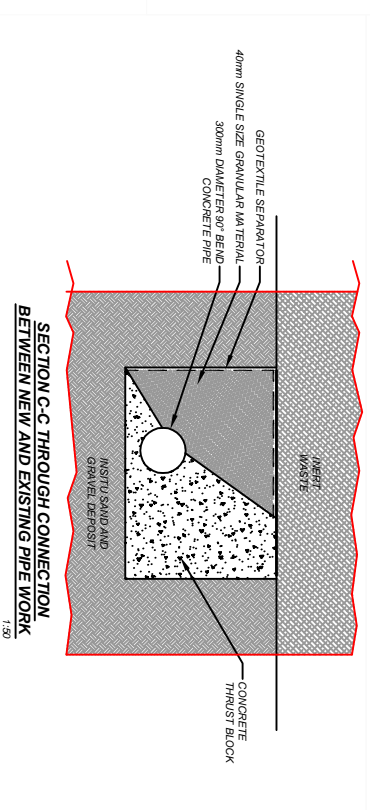
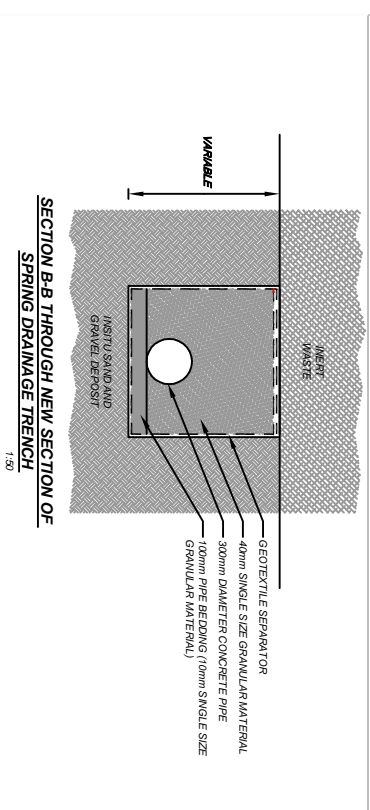
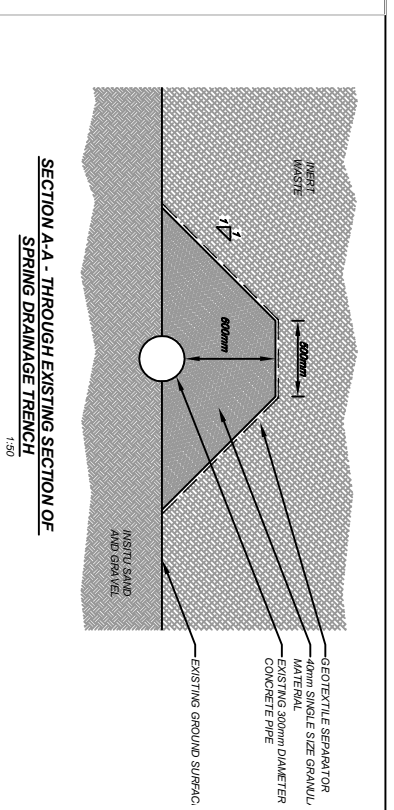
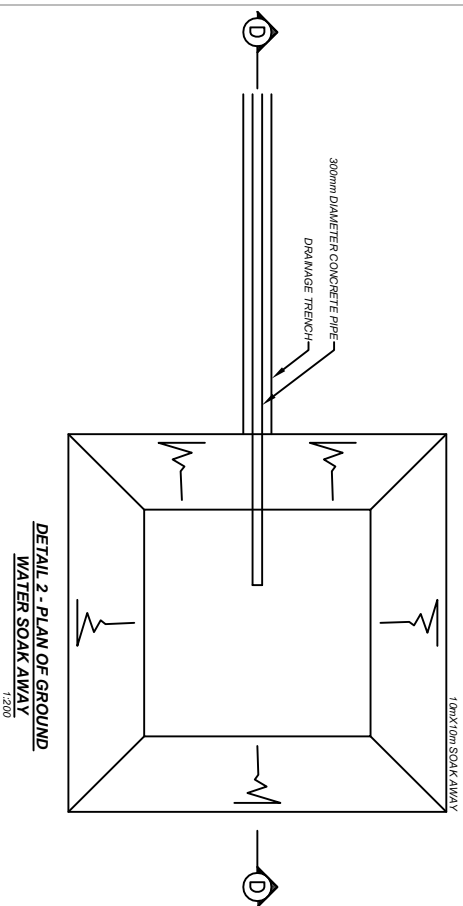
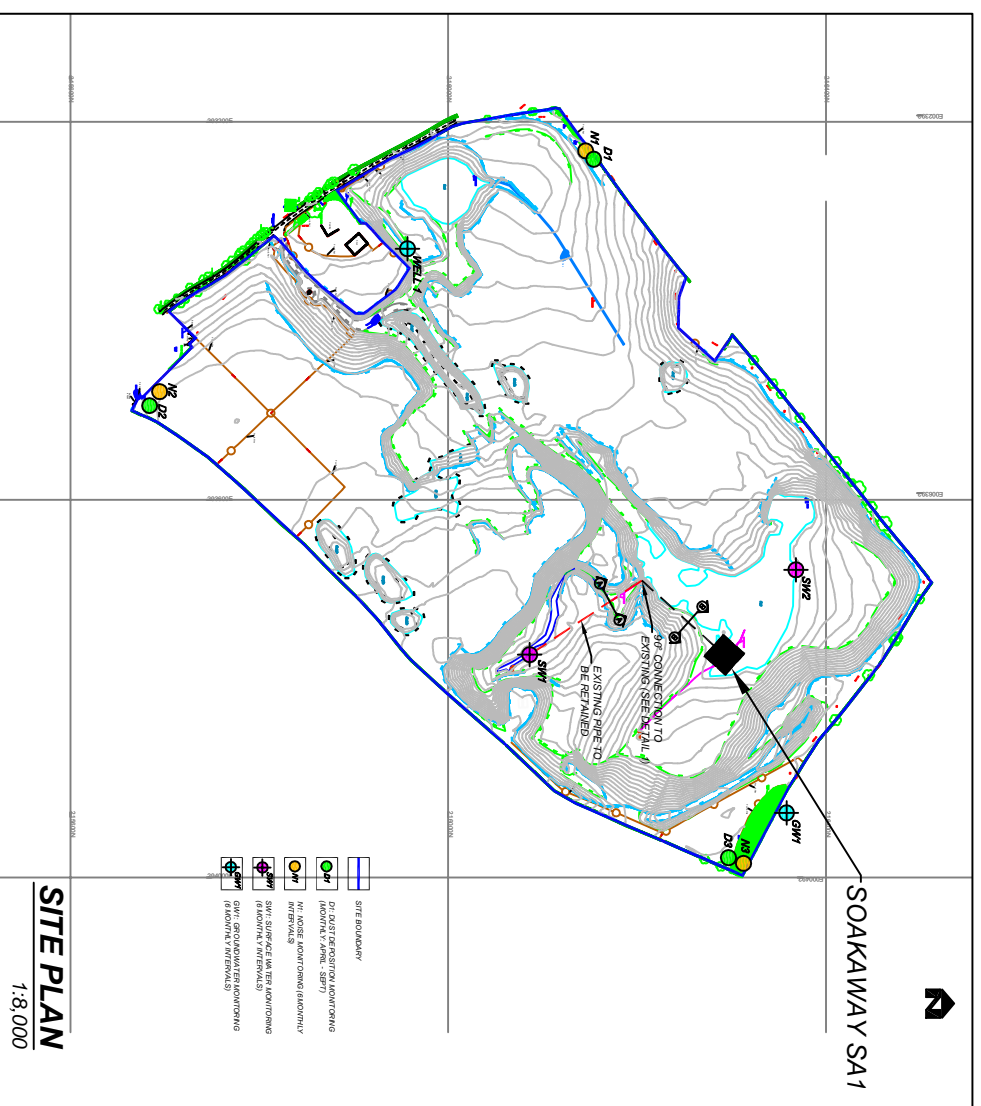


SURVEY INFORMATION PROVIDED BY ERKINA SURVEYS
REF: 0941-1 REV10 DATED 22-8-07

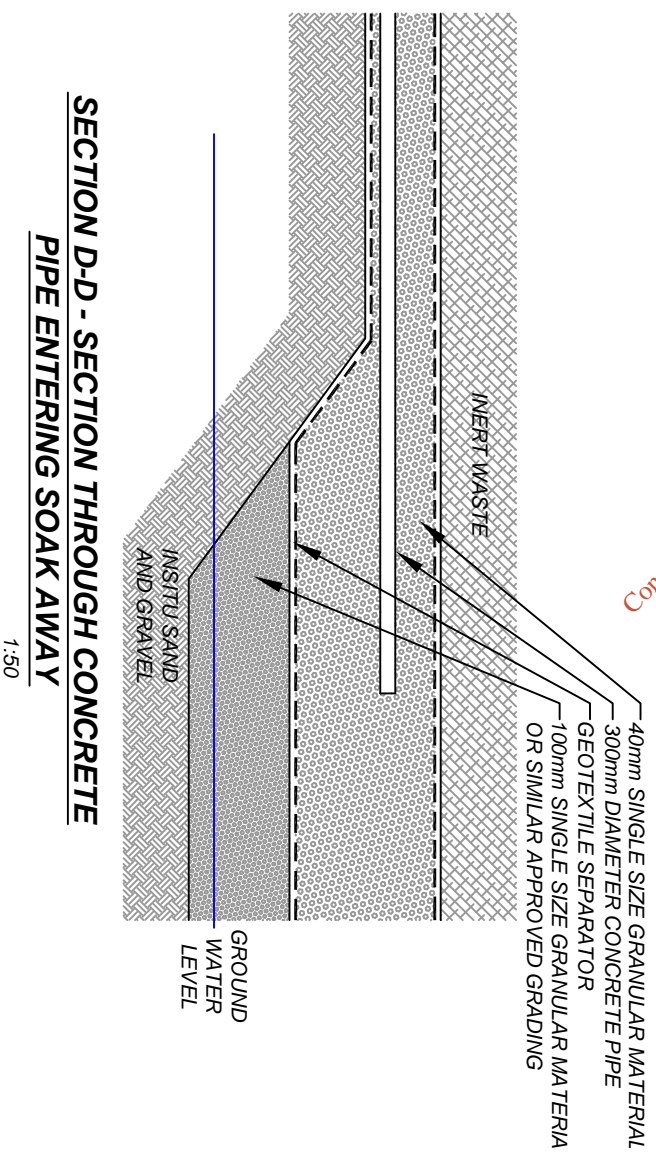
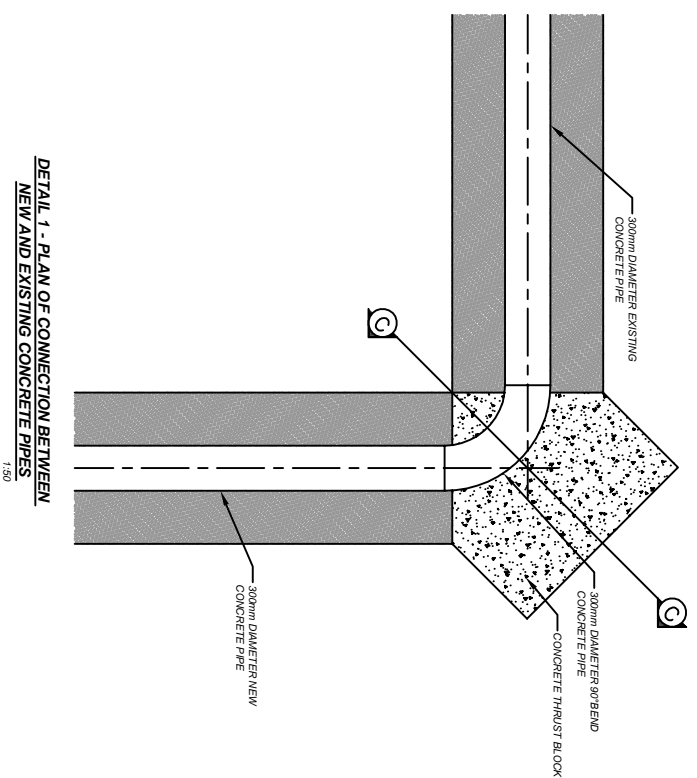
Rev.	Date	By	Description
0	FEB 08	LMC	

Site: Blackhall, Punchestown, Naas, Co. Kildare
Project: Blackhall Site Restoration
Title: Local Hydrogeology and Hydrology
Drawn: SLR - BAK
Scale: 1:1250
Job. No. 405-636-0004
Date: March 2008

FIGURE E4.1



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SURVEY INFORMATION PROVIDED BY ERKINA SURVEYS
REF: 0941-1 REV.0 DATED 22-8-07

Rev.	Date	By	Description
0	JAN 2008	SLR/JC	SECTIONS

Site: Blackhall, Punchestown, Naas, Co. Kildare
Project: Blackhall Site Restoration
Title: Design of Proposed Discharge and Soakaway
Drawn: SLR/403SW
Scale: as shown
Job. No: JBA/3746
Date: March 2008

FIGURE E4.2

ATTACHMENT E5 – NOISE EMISSIONS

Noise at the application site is principally generated by traffic movements and mobile construction plant. There are no fixed (point) noise sources at the site.

Baseline noise levels and an assessment of the short-term ambient noise levels generated by HGV movements, earthmoving plant and crushing and screening equipment during the proposed site restoration works are provided in Section 8 of the Environmental Impact Statement.

There will be no additional noise generated at the application site over and above that currently generated by the ongoing site restoration works. In the longer-term, on completion of the restoration works, there will be no noise emissions from the site.

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ATTACHMENT E6 – ENVIRONMENTAL NUISANCES

Bird Control

Refer to Section 2.5.2 of the Environmental Impact Statement.

Dust Control

Refer to Section 2.5.3 of the Environmental Impact Statement.

Fire Control

Refer to Section 2.5.7 of the Environmental Impact Statement.
Refer also to the outline contingency plan in Appendix 2J of the Environmental Impact Statement.

Litter Control

Refer to Section 2.5.4 of the Environmental Impact Statement.

Traffic Control

Refer to Section 2.2.8 of the Environmental Impact Statement.

Vermin Control

Refer to Section 2.5.6 of the Environmental Impact Statement.

Road Cleansing

All HGV traffic leaving the application site will be required to pass through the existing wheelwash facility at the end of the paved internal road, refer to Sections 2.2.4 and 2.2.8 of the Environmental Impact Statement.

At the present time, Behans Land Restoration ensures that existing paved roads within its landholding as well as adjoining local public roads are subject to regular cleaning by road sweepers. The principal objective of the road sweeping is to remove soil or mud debris carried onto these roads by traffic entering and leaving the existing waste facility. The existing programme of road sweeping will continue throughout the proposed remediation process.