

Escrick Screening Bund

Environmental Setting and Site Design Report

Escrick Environmental Services Limited

Report No. 16-K5259-BLP-ENV-R-00013

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Disclaimer: Please note that this report is based on specific information, instructions and information from our Client and should not be relied upon by third parties.

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1 Introduction

1.1 Report Objectives

This Environmental Setting and Site Design (ESSD) report has been prepared to support a permit application by Escrick Environmental Services Limited (EES, the Operator) by ByrneLooby for a bespoke Waste Recovery Permit. The permit will allow the construction of a perimeter screening bund at the former clay quarry site near Escrick, York (the Site).

Environment Agency (Agency) guidance¹ on what to include in your ESSD report has been used to prepare this report.

1.2 Site Details

The Site is located to the west of the A19 midway between York and Selby. The villages of Escrick and Riccall are approximately 2 km to the north and south respectively. The National Grid reference taken from the centre of site is SE 62092 40358 and access to the site is via a tarmac road from the A19 (Riccall Road). The site location is shown on drawing referenced: 5259/2/003. The Site benefits from existing site security including perimeter fencing and access gate.

The Site is surrounded by agricultural land, with Escrick Business Park to the east and the York & Selby cycleway (part of the Trans-Pennine Trail) to the west. A few residential properties are located northwest to southeast.

The surrounding ground level around the site is relatively consistent with a typical elevation on the southern boundary of 6 mAOD rising slightly to 8 mAOD on the northern boundary. This rises to approximately 16 mAOD at the crest of a low east-west ridge 1.4 km to the north of the site. The banks of the River Ouse 2.2 km to the southwest of site mark the lowest local topography at around 5 mAOD. The highest topographical point in the immediate area is Stillingfleet Hill, 2 km to the northwest.

Currently EES are the permit holders of:

- EPR/ZP3835JD (Escrick Soil Landfill Site);
- EPR/JB3934AE (Escrick Recreational Facility); and
- EPR/DB3000UP (Escrick Aggregate Treatment Plant).

Also onsite is a Waste Treatment (soil washing) Facility held by Acumen Waste Services Ltd (EPR/BB3907LY). A closed landfill permit is also held by Biffa UK Ltd (referenced EPR/NP3290ZK).

¹ [What to include in your environmental setting and site design report - Landfill operators: environmental permits - Guidance - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/what-to-include-in-your-environmental-setting-and-site-design-report-landfill-operators-environmental-permits)

2 Conceptual Site Model: Source

2.1 Historic activities

The Site has been in active use as a clay extraction and infilling facility for many years. Although the Site is known as a brick works, manufacture of bricks and tiles ceased in 1991. The brick factory was demolished in 2006. Historically, the brickworks site has been subject to numerous planning consents for the erection of buildings and equipment, the extraction and storage of clay, and the disposal of biodegradable waste by landfilling.

Planning Permission (referenced: C8/10/3R/PA) was granted in 1992 for an extension to clay workings together with the backfilling of the void with domestic, commercial and industrial waste. The south-eastern corner of the clay pit is occupied by a closed and restored landfill cell containing approximately 150,000 tonnes of biodegradable waste under a closed landfill permit (referenced EPR/NP3290ZK) held by Biffa UK Ltd. The landfill cell was constructed with a fully engineered liner and cap which by contemporary standards would meet the requirements of the Landfill Directive. Although the boundary for the Biffa permit extends around the entire perimeter of the former quarry void, landfilling was discontinued in 1996 and no further waste deposits were made. The boundaries of the EES permits listed above do sit within the wider Biffa permit boundary, but none of them overlap the Biffa waste deposits.

A notice was served in 2006 by North Yorkshire County Council that the review provisions of the Environment Act 1995 applied to the Site and that as a consequence it was necessary for them to apply for the determination of new planning conditions. New planning conditions were submitted to the Council and Planning Permission (referenced: C8/10/3AB/PA) was granted in November 2007 for the continued extraction of clay and restoration of the site utilising inert waste materials.

Operations commenced onsite in accordance with a registered Paragraph 19 exemption under the Environmental Permitting (England and Wales) Regulations 2007. These regulations were superseded by the Environmental Permitting (England and Wales) Regulations 2010 which changed the permitting framework. Regulation 103 of the 2010 Regulations included transitional provisions. The Site continued to operate under a Paragraph 19 exemption until September 2011 when the transitional arrangements that were in place ceased and were no longer applicable.

Escrick Recreational Facility Permit (referenced: EPR/JB3934AE) was issued in January 2013. It allowed the construction of a noise and visual screening bund between the Site and adjacent business park. Construction of a platform for the installation of an aggregate recycling plant and associated storage areas and water handling. Construction of a Mountain Bike Skills Centre and associated wildlife/conservation pond and fishing pond.

Environmental Permit (referenced EPR/DB3000UP) was issued as a Standard Rules activity referenced SR2010No.12 in May 2015 for Escrick Aggregate Treatment Plant, although this has not yet been constructed. The purpose of this activity is to treat waste to produce soil, soil substitutes and aggregates. The permit was varied in October 2018 to include Standard Rules referenced

SR2010 No.17 for the storage of wastes to be used in land treatment (storage of waste prior to use).

Escrick Soil Landfill Site Permit (referenced: ZP3835JD) was issued in September 2019 for an inert landfill to restore the Site. Prior to commencement, Conditions 17 and 18 of Planning Permission referenced C8/2020/0460/CPO granted by North Yorkshire County Council (NYCC) require construction of a screening bund on the western, northern, and eastern boundary. NYCC has specifically mandated that the construction of this bund must be completed in phases before specified areas of the landfill itself can be developed. The Planning Permission also requires 2 metres (m) of soils to be placed upon material deposited for construction of the bund and waste disposed of in the landfill to provide a suitable growing medium for the proposed restoration scheme.

This application is for a Waste Recovery Permit to construct the perimeter screening bund. This would also involve the placement of a 2 m depth of suitable soil forming material to establish vegetative growth on its outer flank. A Waste Recovery Plan (WRP) (referenced: K5259-BLP-ENV-R-00001) has been approved by the Environment Agency (Agency).

EES are also proposing to apply for a permit variation application for the Escrick Soil Landfill Site, to incorporate the requirements of the Planning Permission to increase the depth of restoration soil above the cap. The permit already allows the placement of 1 m of restoration soil and will be increased to 2 m. The permit variation application is being submitted separately.

2.2 Proposed Development

The purpose of the work is to construct a bund that will screen the landfilling activities from members of the public using the Tran-Pennine Way transit way to the west of site and the users of the commercial estate to the east. This bund must be constructed to allow prompt establishment of vegetation to incorporate the structure into the surrounding landscape. This will ultimately be the case for the wider landfill site.

The initial grading and screening works to create a screen bund would be carried out progressively extending from east to southwest in an anti-clockwise direction. Access for construction purposes would be along the toe of the screen bund along retained access tracks. The overall screen bund profile would be grass seeded with the outer flank woodland planted using a lowland mixed deciduous woodland matrix. The screening bund will obscure the waste disposal activities reducing the visual impact of the Site on surrounding amenities. The woodland planted at the outer flank will also improve the wildlife value of the Site and provide biodiversity benefits.

This bund will eventually be incorporated into the landform of the Escrick Soil Landfill Site and it will sit within the currently permitted extents of the landfill. In this regard the risk associated with the site as a whole has not changed and the assumptions of the risk assessments and other operating techniques that support the Escrick Soil Landfill Site permit are unchanged.

2.3 Waste Acceptance Procedures

A Waste Acceptance Procedures (WAP) report (referenced: 16-K5259-BLP-ENV-R-00014) has been submitted with this application. Waste acceptance will follow a structured hierarchy with appropriate points of control for the identification and validation of suitable wastes. The waste acceptance procedures will be an integral part of the site Environmental Management Systems (EMS) and can be summarised as follows:

Level 1: Basic characterisation through pre-submission of an appropriate waste classification (European Waste Catalogue (EWC) codes, site investigations etc);

Level 2: Compliance testing; and

Level 3: On-site verification through retrospective review of material deposited at site.

The WAP report also includes a rejection procedure for any load or part load found to be outside those permitted at the site. Further detail is provided in WAP report and has not been repeated in this ESSD.

3 Pathway and Receptor

3.1 Geology

Details of the general geology, hydrogeology and hydrology have been taken from the 2019 Environmental Setting and Site Design (2019 ESSD) submitted as part of the Escrick Soil Landfill Site Permit application and the British Geological Survey (BGS) Website². The geological sequence at the Site is summarised in terms of increasing depth as follows:

- Thin Alluvium - Al;
- Thin drift deposits of quaternary lacustrine sands – SSM;
- Significant thickness of low permeability lacustrine clay – PFM;
- Lower deposit of lacustrine clay/sands/gravel- EMM;
- Triassic Sherwood Sandstone Group strata dipping gently toward the east;
- Permian deposits (Zechstein Group) of Upper Permian Marl, Upper Magnesian Limestone, Middle Permian Marl, Lower Magnesian Limestone and Basal Permian Sands; and,
- Carboniferous Middle Coal Measures.

The report demonstrates that the existing Site, including the Biffa cell, is located on lacustrine clay underlain by lacustrine sand and Triassic Sherwood Sandstone. The clay was proved at a thickness of between 15.7 m and 16.9 m. One borehole located within the excavation area identified a thickness of 9.2 m clay beneath the base of the excavation.

3.2 Hydrogeology

The Agency website indicates that the site is located above a secondary undifferentiated aquifer (superficial deposits) and bedrock designated as a principal aquifer. The superficial aquifer is not within a drinking water safeguard zone. The nearest Source Protection Zone (SPZ) is a SPZ1 approximately 3 km to the south east, 4 km to the east and north east, and 5 km north west; the closest SPZ3 is approximately 9 km to the west-northwest. The Groundsure report attached in 2019 ESSD states that there are no potable groundwater abstractions with 2 km of the site. The nearest abstraction boreholes (potentially used for spray irrigation) are 1.6 km to the south and south west of the site, with numerous abstractions at >1.6 km around the site.

The potential impact of the Escrick Soil Landfill Site on potentially sensitive groundwater receptors was assessed in detail in the Hydrogeological Risk Assessment (HRA) that supported the approved permit application (TerraConsult Ltd report referenced 3156/R/022/05). The screening

² [Geology of Britain viewer | British Geological Survey \(BGS\)](#)

bund sits within the area of the landfill and will form part of its construction. The assumptions of the HRA remain unchanged with the construction of the bund and no further consideration is required as part of this application. No additional groundwater monitoring points are proposed for this reason.

3.3 Hydrology

The site lies within the catchment of the River Ouse which flows north to south approximately 4 km to the west of the site. Flowing south, the Bentley Park Drain approaches the site at its northeast corner. It then flows west coincident to the north boundary, crosses under the Trans Pennine Trail (York and Selby Path) and turns south to run parallel with the trail on its western side. The Bentley Park drain flows into the Parkhill Dyke to the southwest of site, which eventually joins the River Ouse some 2.5 km to the southwest of site.

There is an 'at risk' surface water drinking water protected area associated with the River Derwent which flows north to south, 7 km to the east of the site. There is no hydraulic connection to this river from the water courses located within the immediate vicinity of the site. The site sits within an area which might be at risk from an extreme flood (1 in 1000 chance of occurring each year), although it is not within a higher risk flood alert area.

There are two points of discharge (SW5 and SW6) from the completed landfill that will be monitored under that permit once the landfill has been constructed. SW5 will discharge water from a pond that receives water from the east facing flank and upper surface of the restored landfill and SW6 will discharge water that flows from the north and west facing flanks of the landfill. The water from SW5 joins the Bentley Drain at the sites northeast corner and SW6 flows into the Bentley Drain at the northwest. Each of these points will become active with the construction of the bund, however regulatory control will stay with the Escrick Soil Landfill Site permit as the Escrick Screening Bund permit will be surrendered once it is completed.

3.4 Man-made subsurface pathways

There are no known man-made subsurface pathways e.g. buried services within the site boundary.

3.5 Receptors and compliance points

The HRA referenced: 3156/R/22/05 and a Landfill Gas Generation and Risk Assessment (LFGRA) (TerraConsult Ltd report referenced: 3156/R/09/02) were submitted with the Escrick Soil Landfill Site Permit application. The HRA concluded the predicted leachate strength is likely to be low as it will be subject to the Landfill Directive requirements for waste acceptance at inert landfill sites. The LFGRA concluded the waste would contain low levels of biodegradable waste and as such the expected volumes of landfill gas are small. The site poses a low risk to the surrounding environment, and this is reflected in the emissions and monitoring requirements proposed and included in the Escrick Soil Landfill Site Permit (TableS3.1 to S3.5).

The screening bund will not cause any additional risk as the same materials will be utilised and the screening bund will form part of the final landform of the restored Site. As such, the existing compliance points are considered suitable, and no monitoring is required for the proposed waste recovery permit for the screening bund.

Compliance limits for groundwater are set out in Table S3.2, compliance limits for surface water are set out in Table S3.1 and compliance limits for landfill gas are set out in Table S3.3, S3.3A and S3.4B of the Escrick Soil Landfill Site Permit.

3.5.1 Amenity

The site is located in a predominantly rural setting with neighbouring land use comprising agricultural land. The closest receptor to the site is Bentley Park Drain and the Trans Pennine Trail located <10 m at their closest point. The closest residential receptors are Brickworks Cottages at approximately 225 m east and commercial premises are located approximately 140 m east.

Sensitive Receptors are illustrated on drawing referenced 5259/2/003 Sensitive Receptor Location Plan, the location and relative distance from Site of the receptor is detailed in Table 4 below. A description of the potential receptors located within the vicinity of the Site are detailed further in the accompanying Environmental Risk Assessment (referenced: 16-K5259-BLP-R-ENV-00012).

Table 1 – Sensitive Receptors

Receptor Number	Receptor	Receptor Type	Approx Distance from Site Boundary (m)	Direction from Site	Freq (%) of Prevailing Wind Direction
1	Mount Farm	Agricultural / Residential	340	NNW	11.4
2	Brickworks Cottages	Residential	225	E	3.6
3	Escrick Business Park	Commercial	140	E	3.6
4	Glade Farm and Cottages	Agricultural / Residential	300	SE	2.5
5	Trans Pennine Trail	Public Footpath / Local Wildlife Site	<10	W	1.8
6	Park Court	Commercial	320	E	3.6
7	A19	Public Highway	300	E	3.6
8	Unnamed Drain / Bentley Park Drain	Watercourse	<10	N - NE	12.6 – 10.3
9	Hollicarrs Wood / Hart's Nook	Local Wildlife Site / Ancient Woodland	490	SE	2.5
10	Glade Farm Fishing Pond	Watercourse	390	S	0.7
11	Gamble's Rush	Deciduous woodland	360	SW	2.5
12	Parkhill Dike	Watercourse	60	W	1.8

4 Pollution Control Measures

4.1 Site Engineering

A WRP has been developed to demonstrate the recovery activity fulfils a specific obligation, in that the bund to the western, northern, and eastern boundary of the proposed landfill will provide mitigation screening throughout the landfilling operations as specified in Conditions 17 and 18 of Planning Permission referenced C8/2020/0460/CPO.

The new perimeter landform would comprise of an external slope with a uniform gradient of 1v:5h (20% grade) rising to a level differential of 5 metres above surrounding ground levels. The overall height of the screen bund would vary from 12 to 13 metres AOD. A 3m wide crest would be formed at the top of the bund, forming an inner slope graded down at 1v:2h to meet with current landform levels. The finished screen bund outer flank profile will comprise of suitable soil forming materials formulated to promote optimal growth which would be loose tipped to minimise compaction to a depth of 2 metres prior to grass seeding and subsequent woodland planting. It should be noted that the bund crest and inner profiles are temporary in nature providing, in part, a screening function that would eventually be covered by restoration soils or lining materials as the phased development of the final landform is raised over time. The outer slope would however comprise of permanent woodland and be retained. The construction of the screening bund and placement of 2 m of restoration materials will require 133,000 m³ of materials.

A Stability Risk Assessment (SRA) (referenced: 5355-R01) of the bund construction has been undertaken and is attached to the WRP. The original internal side slope of the edge bund was found to be potentially unstable at a slope of 1v:2h with an Overdesign Factor of less than unity. The side slopes would therefore need to be slackened to 1v:2.5h. The revised side slopes are stable under various situations, with ODF values all greater than unity. Although the slope would be stable at 1v:2.5h, this is still too steep to operate vehicles on to place a sidewall liner against. The inner face gradient of the bund therefore needs to be reduced further to 1v:3h.

In summary, the outer face of the edge bund should be constructed to the permitted slope of 1v:5h. The inner face of the edge bund should be constructed at a slope no steeper than 1v:2.5h but for landfill liner construction purposes no steeper than 1v:3h. The material of the bund and AGB should be compacted at optimum water content to optimum +2% and to an air voids ratio of at least 95%. This should be confirmed by appropriate testing during the Construction Quality Assurance (CQA) supervision as it will support the lining system of the landfill.

The waste material should be placed in layers and compacted as infilling progresses. Care should be taken to avoid differences in height of more than two metres across the infilled area.

The outer face of the waste material should slope at no steeper than 1v:5h, and should be placed no higher than the permitted level.

If the design of the proposed landfill changes, or the plant used is of a more onerous loading configuration, the analysis and conclusions of the SRA should be reviewed and amended as necessary.

4.2 Restoration

It is not possible to restore the Site via landfill without first constructing the screening bund in accordance with the planning obligation. The construction Phases are summarised below:

- An initial establishment phase: to form the outer screen bund around phase's 1-2 comprising of landraising and woodland planting
- Phase 1: comprising of landraising and restoration to lowland mixed deciduous woodland.
- Phase 2: comprising of landraising and restoration to lowland mixed deciduous woodland.
- Final screen bund development along outer margins of phases 3A-3B.
- Phase's 2, 3 and 4: phase's 1-3 would be principally restored to lowland mixed deciduous woodland. Phase 4 would be restored to semi-improved lowland neutral grassland, scattered scrub, ponds, scrapes and reedbed.

An approved Restoration Scheme (TerraConsult Ltd report referenced: 3156/R/28/03) was submitted with the Escrick Soil Landfill Site permit application. This included an approved Benefit Statement (Appendix A of 3156/R/28/03). The benefit statement assumed 0.5 m of subsoil and 0.5 m of topsoil using the wastes specified. This application requires an additional 1 m of subsoil with no amendments to its composition (or the topsoil). The additional 1 m of subsoil is not considered to represent any additional risk to the environment and a new benefit statement is not considered necessary. There is a clear obligation to use 1.5 m of subsoil and 0.5 m of topsoil as determined as part of the planning consent and as agreed with subsequent WRP which it is based upon.

The restoration materials to be used for the outer flanks of the screening bund will require the creation of the following soil profile were Compost Like Output (CLO), soil forming materials or topsoil is used as applicable:

- 1.5 m of subsoil using soil substitutes using the wastes listed in Table 2 of the WRP and to the specification in Table 2 and 3 of the benefit statement. This represents an increase of 1 m from the originally submitted benefit statement. The composition of this material remains unchanged.
- 0.5 m of topsoil using CLO and soil substitutes using the wastes listed in Table 2 of the WRP and to the specification in Table 2 and 3 of the benefit statement. The composition and depth of this layer is unchanged from the original benefit statement

The sub soil will be placed directly as received at the site. This same material may need to be ameliorated using CLO to improve the nutrient and organic content of the topsoil layer. The amelioration process is described below:

- Initial 1500 mm layer of subsoil will be placed above the outer flank of the core bund structure. The depth will be managed by use of profile boards.
- The subsoil will be broken up to a depth of 150 mm by ploughing, rotovating or digging.
- The tilth will then be suitably compacted to a depth of 75 mm. Any stones or debris > 50 mm will be removed.
- The chemical and physical composition of the CLO will be determined by the supplier and the test data provided to the Operator. This will determine the ratio of CLO to soil forming materials (also used in the subsoil layer) required to meet the specification detailed in Table 3 of the Benefit Statement. An appropriate depth of CLO will then be placed and bladed out by the Operator. The appropriate depth of sub-soil material will then be placed and bladed out above the CLO layer. This will then be rotovated in. This process will be repeated until the required 0.5 depth of topsoil is achieved. Amelioration of topsoil materials may also take place prior to materials being placed and bladed out.

4.3 Surface Water Management

Surface water currently drains to the deepest area of the quarry where it is either pumped to the adjacent Bentley Drain under a consented discharge or used for process water on a separately permitted waste treatment facility run by another operator (Acumen).

The restoration scheme will manage surface water run-off from all site surfaces via a series of drains that flow to a pond located to the southeast of the landfill as shown on drawing referenced 3156/1/013. Clean surface water draining from the north and west flanks will drain via a second discharge point into the Bentley Drain (SW6). This will be via storm water retention feature. Both the pond to the southeast and storm water attenuation feature on the west boundary will act as flow balancing and suspended solids settlement features prior to discharge into the Bentley Drain (SW5) as currently consented.

4.3.1 Maintenance of Surface Water Management System

The maintenance regime to be employed on site for the surface water drainage system has the following objectives:

- On a regular basis inspect all ditches and settling ponds and other elements of the surface water management system;
- Maintain all cut off ditches, settling ponds and other elements of the surface water management system to ensure they are in good order; and,
- Promote vegetation of restored surfaces to prevent erosion and reduce entrainment of suspended solids.

The maintenance regime can be summarised as follows:

- The physical appearance of the whole system will be monitored on each working day to ensure the system has not been accidentally damaged;
- An inspection of all surface water ditches and settlement lagoons, carried out to identify any maintenance requirements, will be carried out on a weekly basis;
- Any mechanical elements of the system will be thoroughly serviced at the manufacturer's service period recommendation; and,
- Records will be made of all weekly inspections and mechanical servicing.

5 Monitoring

5.1 Overview

The assumptions of the HRA and LFGRA which are operating techniques that support the extant Escrick Soil Landfill Site permit remain unchanged. Monitoring of groundwater, surface water and ground gas will therefore continue in accordance with the landfill permit with no additional proposals included with this application.

5.2 Post-Closure Controls (Aftercare)

The screening bund will form an integral part of the final landfill construction and will be completed and surrendered before the landfill is finished. The post-closure aftercare measures for the landfill will then be followed for the entire site. No additional measures are required with this application.

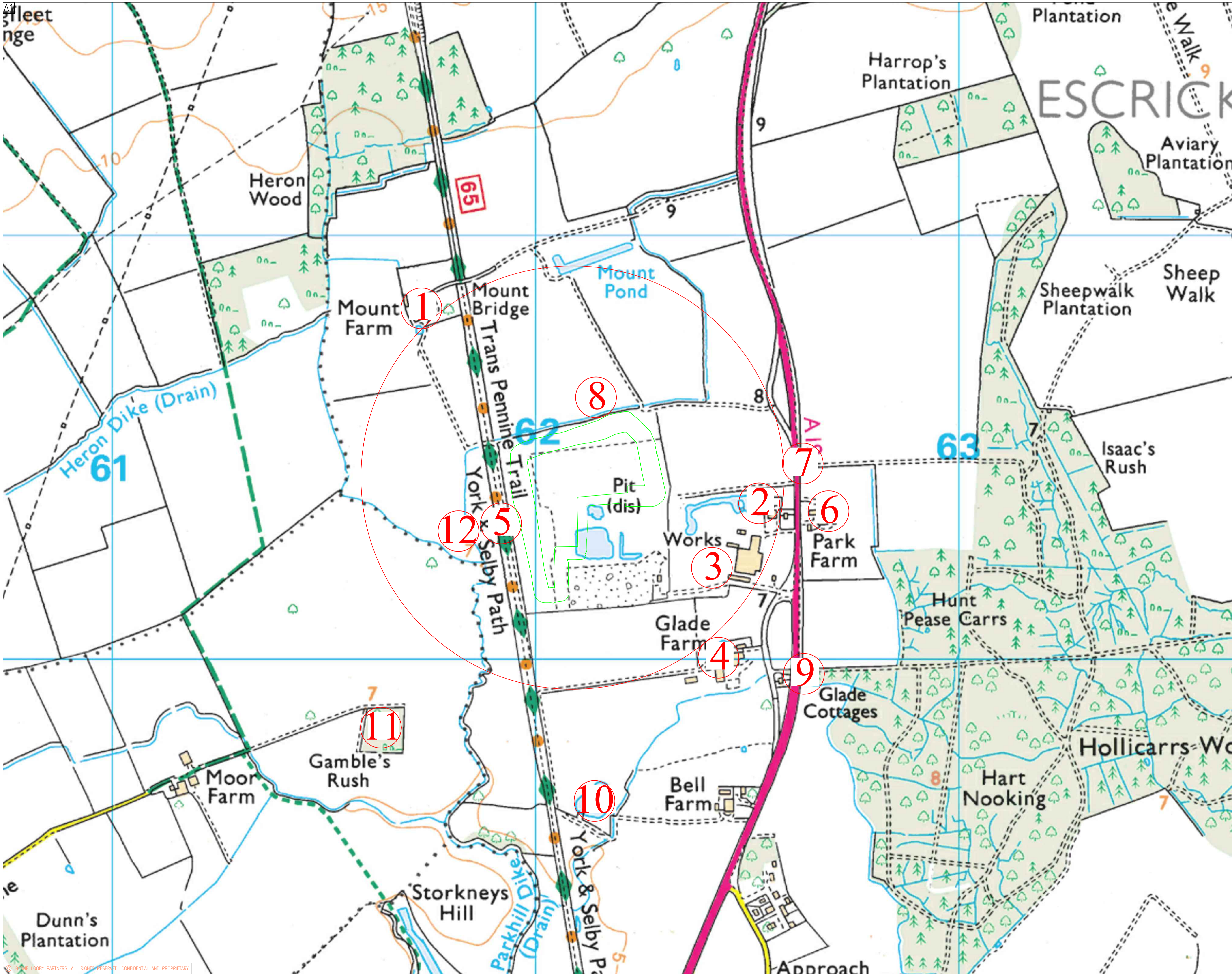
6 Site Condition Report

6.1 Requirements of a Site Condition Report

The requirement to submit an SCR does not apply to the construction of the screening bund at the Site as it will be subject to permanent deposits of recovered waste construction materials. As the entirety of the area within the environmental permit boundary is subject to the permanent deposition of waste, it is considered that an SCR is not required.

Notwithstanding the above, the Operator will continue to implement management measures throughout to ensure that any likelihood of contamination to land, surface water and groundwater will be reduced during the operational process on Site. A copy of the contents of the EMS is attached as Appendix C of the Permit Application Report (referenced: 16-K5259-BLP-R-ENV-00011).

Appendix A – Drawings



GENERAL NOTES

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
2. DO NOT SCALE FROM THIS DRAWING.
3. ANY ANOMALIES IDENTIFIED WITH THE DETAILS SHOWN ON THIS DRAWING ARE TO BE BROUGHT TO THE ATTENTION OF BYRNE LOOBY PRIOR TO CONSTRUCTION WORKS COMMENCING.

LEGEND:

- Permit Boundary
- Buffer Zone
- ① Receptor Marker

Rev	Date	Description	By	Chk	App
BYRNE LOOBY WWW.BYRNELOOBY.COM					
IRELAND UK UAE BAHRAIN KSA					
CLIENT Escrick Environmental Services Limited					
PROJECT Escrick Screening Bund					
DRAWING TITLE Receptor Plan					
STATUS FOR CONSTRUCTION					
Date	28/04/22	Scale	1:4000	Drawn	JM
Project No.	5259	Dwg. No.	5259.2.003	Appr.	JB
				Rev	00

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Outfall to Bentley Park Drain
4.5m AOD

80mm Orifice
CL = 8.0 mAOD
IL = 7.4 mAOD
Max flow = 10.0 l/s

Swale
CL = 8.0 mAOD
IL = 7.4 mAOD
Side Slope = 1:1
Top width = 2.0 m
Length = 622 m
Volume = 522 m³

Outfall to Ditch (Unnamed)
5.0m AOD

66mm Orifice
CL = 6.4 mAOD
IL = 5.2 mAOD
Max Flow = 7 l/s

Surface water pond
CL = 6.4 mAOD
IL = 5.2 mAOD
Side Slope = 1:3
Top Surface area = 6767 m²
Volume = 5935 m³

- Notes:
1. This drawing is not for construction purposes, and the location and dimension of the drainage features are for illustrative purposes,
 2. Do not scale off drawing, if in doubt contact TerraConsult,
 3. This drawing is not to be reproduced in any part or form without consent of TerraConsult,
 4. This drawing represents the conceptual Surface water drainage design outlined in TerraConsult Report 3156/R12. This drawing should be read in conjunction with all relevant reports including TerraConsult report 3156/R11,
 5. Surface levels prescribed are based on TerraConsult Drawing 3156/1/003 and Topographic survey drawing from MSURV 1215/729/1. These levels should be verified through a detailed site survey prior to any construction.

- Key
- 12.0 — Existing Ground Contours
 - 12.0 — Proposed Pre Settlement Top of Infill Contours
 - EP Boundary
 - Surface Water Drainage Areas
 - Surface Water Drainage
 - Manhole / Junction
 - Surface Water Pond / Swale



Bold Business Centre, Bold Lane, Sutton, St Helens WA9 4TX

Client **Escrick Environmental Services Limited**

Site **Escrick Soil Landfill**

Title **Conceptual Surface Water Drainage Strategy**

Scale 1:2,000 @ A3

Drawing No. 3156/1/013

Rev	Date	Description

File 31561013 - Surface Water Management Plan

Date 11/25 Engineer BNW

Drawn BNW Checked DRAFT

Drain PN	Length (m)	Slope (1:X)	US CL (mAOD)	US IL (mAOD)	DS CL (mAOD)	DS IL (mAOD)	Type or pipe Dia (mm)
1.000	31.0	28.2	16.00	15.40	14.90	14.30	-1
1.001	4.5	45.0	14.90	14.30	14.80	14.20	225
1.002	211.8	92.1	14.80	14.20	12.50	11.90	-1
1.003	4.0	40.0	12.50	11.90	12.40	11.80	300
1.004	23.3	116.5	12.40	11.80	12.20	11.60	-1
2.000	114.0	142.5	13.00	12.40	12.20	11.60	-1
1.005	4.0	40.0	12.20	11.60	12.10	11.50	300
1.006	18.3	5.9	12.10	11.50	9.00	8.40	-1
3.000	85.8	122.6	10.00	9.40	9.30	8.70	-1
3.001	10.0	100.0	9.30	8.70	9.20	8.60	300
3.002	37.2	186.0	9.20	8.60	9.00	8.40	-1
1.007	33.5	8.4	9.00	8.40	5.00	4.40	-1
4.000	235.8	235.8	10.00	9.40	9.00	8.40	-1
4.001	26.8	6.7	9.00	8.40	5.00	4.40	-1
5.000	76.0	760.0	13.30	12.70	13.20	12.60	-1
5.001	4.0	40.0	13.20	12.60	13.10	12.50	300
5.002	121.3	23.8	13.10	12.50	8.00	7.40	-1
5.003	32.3	10.8	8.00	7.40	5.00	4.40	-1
6.000	168.0	49.4	16.00	15.40	12.60	12.00	-1
6.001	4.0	40.0	12.60	12.00	12.50	11.90	300
6.002	66.5	14.8	12.50	11.90	8.00	7.40	-1
7.000	220.0	220.0	9.00	8.40	7.40	7.40	-1
6.003	5.0	50.0	8.00	7.40	7.30	7.30	300
6.004	28.7	9.9	7.90	7.30	5.00	4.40	-1
1.008	32.5	162.5	5.00	4.60	5.10	4.40	300
8.000	15.5	15.5	9.00	8.40	8.00	7.40	-1
9.000	22.8	11.4	10.00	9.40	8.00	7.40	-1
8.001	25.0	15.4	8.00	7.40	6.50	5.78	225

Ditch Type	Symbol	Base Width (mm)	Depth (mm)	Side Slope	Top Width (mm)	Area (m ²)
-1	V	500	600	45.0	1700	0.66

Storage Feature	Base Area (m ²)	Top Area (m ²)	Side Slope (V:H)	IL (mAOD)	Depth (m)	Porosity
Swale 1	498	1244	1:1	7.4	0.6	1.00
Surface Water Pond	5112	6767	1:3	4.0	5.0	1.00



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