



Site Condition Report

Meece 1 Landfill

Report No. 14-K6094-ENV-R006

May 2024

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Biffa Waste Services Limited

Document Control

Project

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Client

Biffa Waste Services Limited

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Site Condition Report

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14-K6094-ENV-R006

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Date	Rev	Details of Issue	Prepared by	Checked by	Approved by
May 2024	00		<i>Jennie Walker</i>	John Baxter	John Baxter

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[1] Introduction

[1.1] Site Details

Name of Applicant	Biffa Waste Services Limited
Activity Address	Meece 1 Landfill Swynnerton, Cold Meece, Stone, Staffordshire, ST15 0QN
National Grid Reference	SJ 85070 34353
Document Reference	K6094-ENV-R006
Date for Site Condition Report at permit application	May 2025
Date for Site Condition Report at surrender	n/a
Document Reference for Site Plans	Drawing M4032800

[1.2] Background

Ayesa (ByrneLooby Partners (UK) Limited) have been commissioned by Biffa Waste Services Limited (Biffa) to prepare a Permit variation application for the Meece 1 Landfill (the Site) Environmental Permit Ref. EPR/BV4967IW. The Site is operated by Biffa (the Operator) along with ST15 0QN a hazardous Soils Treatment Facility (STF) which has been developed within the eastern part of the permitted area.

The site is located at Swynnerton, Cold Meece, Stone, Staffordshire, ST15 0QN. Landfilling at the site commenced prior to 1996 with the site to date developed as twelve cells (Phase 0 to Phase 7 and 13A). Meece 1 was mothballed in 2008 following the completion of Phase 7. The eastern part of the site (Phases 8, 11, 12, 13B and 14) therefore remains as available permitted void space and is undeveloped. The site location and surrounding features are illustrated in Figure 1.

A Permit variation application is being submitted to allow for the construction of a reverse osmosis (RO) treatment plant, amongst other changes to Permit conditions. To allow for this, there is a requirement to extend the site boundary to add an area of land to the north of the site. This Site Condition Report (SCR) has been prepared for the new area of land delineated by the red boundary illustrated on Figure 2, to be included within the wider permitted area. The report therefore forms an addendum to the historical Site Condition Report prepared for the existing permitted area.

This document has been prepared in accordance with the requirements outlined in the Environment Agency's "Guidance for applicants H5. Environmental Permitting Regulations. Site condition report - guidance and templates" (LIT 8001 Version 3.0 April 2013) with the objective of recording the condition of the land prior to the issue of the permit. The aim of this report is to establish baseline conditions at the site against which conditions for surrender of the Environmental Permit (as required) in the future can be established.

Figure 1 – Site Location

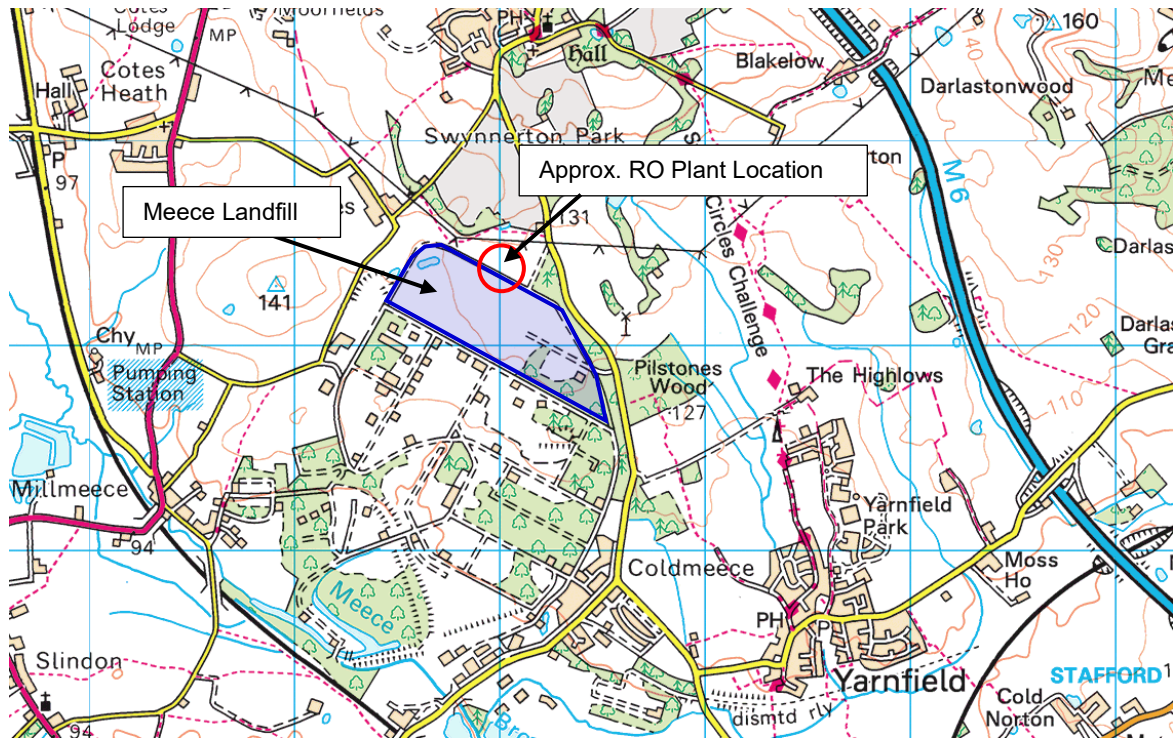
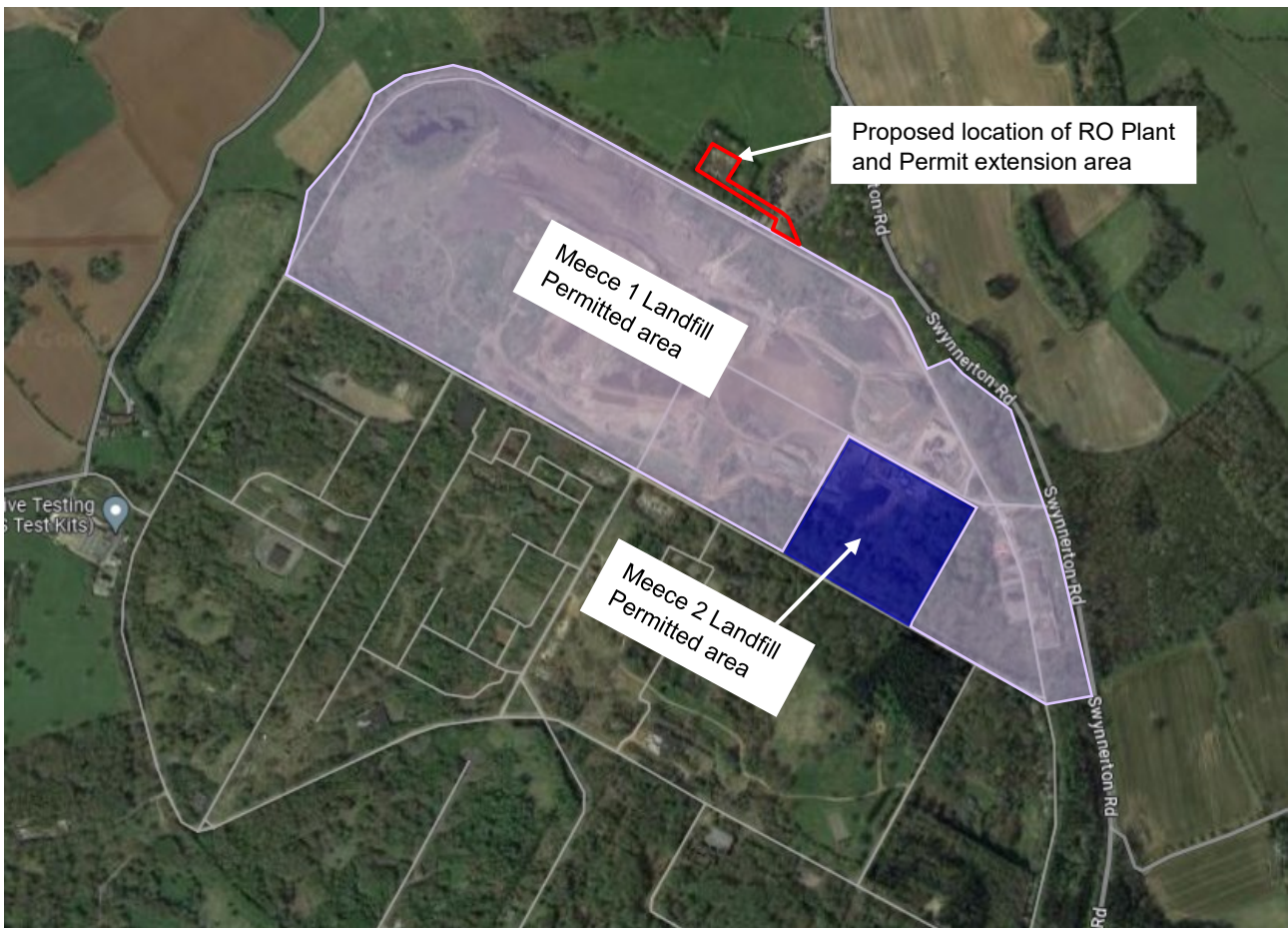


Figure 2 - Proposed RO Plant Location and Permit Boundary Extension



The proposed RO plant is being developed upon an existing concrete pad most likely associated with the former WWII Munitions factory. The proposed layout of the leachate treatment plant is illustrated on Drawing M4032800. The proposed Permit boundary is illustrated on Drawing M4032700.

[1.3] Site History

OS mapping indicates that during 1879 the site of the proposed RO plant existed as open fields with ponded areas located to the north, west and south. Swynnerton Park is noted to the north of the site. No development occurred between 1879 and 1955. During the late 1950's and 1960's the site is shown to have been developed as part of the former ordnance depot and a square area of hardstanding appear to be present.

Aerial photos available from 2003 to present indicate that the hardstanding area is still present. The former use of this hardstanding area, other than as part of the ammunition depot, is not clear. The area to the south of the site has been developed as Meece 1 landfill which was licensed as a landfill in 1986 under the management of Staffordshire County Council (SCC).

[2] Condition of the Land at Permit Issue

[2.1] Introduction

This Site Condition Report (SCR) provides an assessment of the extension area (the Site) condition at the time of permit application and is a document designed to be maintained throughout the operational life of the site and supplemented with any additional obtained site-specific ground condition information. Upon surrender of the permit, following cessation of operations, an assessment of the site conditions will be made as well as the potential impacts to land. A comparison to this pre-operational SCR will be made in order to prepare a post-operational SCR.

This section provides a preliminary assessment of the site using published information and information provided by Biffa to observe and record the current condition of the land proposed to be included within the in the permit boundary.

[2.2] Environmental Setting

This section presents a summary of the environmental background information (geology, hydrology, hydrogeology etc.) available from public sources including the British Geological Survey (BGS) website, DEFRA's interactive "Magic Maps" located on their website. This information, together with the site history, represents the base data with regards to the condition of the land.

[2.2.1] Made Ground

As detailed in Section 1.3 above, there is evidence of a hardstanding area being present across the site since the late 1950's. Anecdotal information indicates that the hardstanding is a concrete slab, although no information on the condition and depth of the slab is known. The remainder of the area is undeveloped.

Site-derived borehole logs do indicate that made ground is present around the perimeter of the Meece I landfill (up to a thickness of 5m on the southern boundary of Phase 0). Hence, further made ground may be present across the extension area.

[2.2.2] Geology

According to the British Geological Survey (BGS) mapping, superficial deposits are not present beneath the Site (Figure 3). Sand and gravel deposits are present within the local vicinity of the site. The closest of these deposits is immediately to the east of Synnerton Road, some 200m east of the Site.

Bedrock geology comprising of the Keuper Marl (now known as the Triassic Mercia Mudstone Group) outcrops at the site. This is described as a red marl with thin sandstones, rock salt and gypsum (Figure 3). According to the 2003 ESID, the Mercia Mudstone is approximately 130m in thickness locally, based on published cross-sections. However, this report acknowledges that the Swynnerton Fault may affect the dip and thickness of the Mercia Mudstone beneath Meece 1 Landfill and by proxy the extension area.

The Swynnerton Fault is illustrated on Figure 3, transecting in a north-east to south-west direction across the north-western corner of Meece Landfill. The Wildmoor Sandstone Member (formally Pebble Beds, Figure 4) of the Wilmslow Sandstone Formation (WLSF) outcrops to the north of this fault.

Figure 3 – Geology (extract from BGS Map 139, 1974)

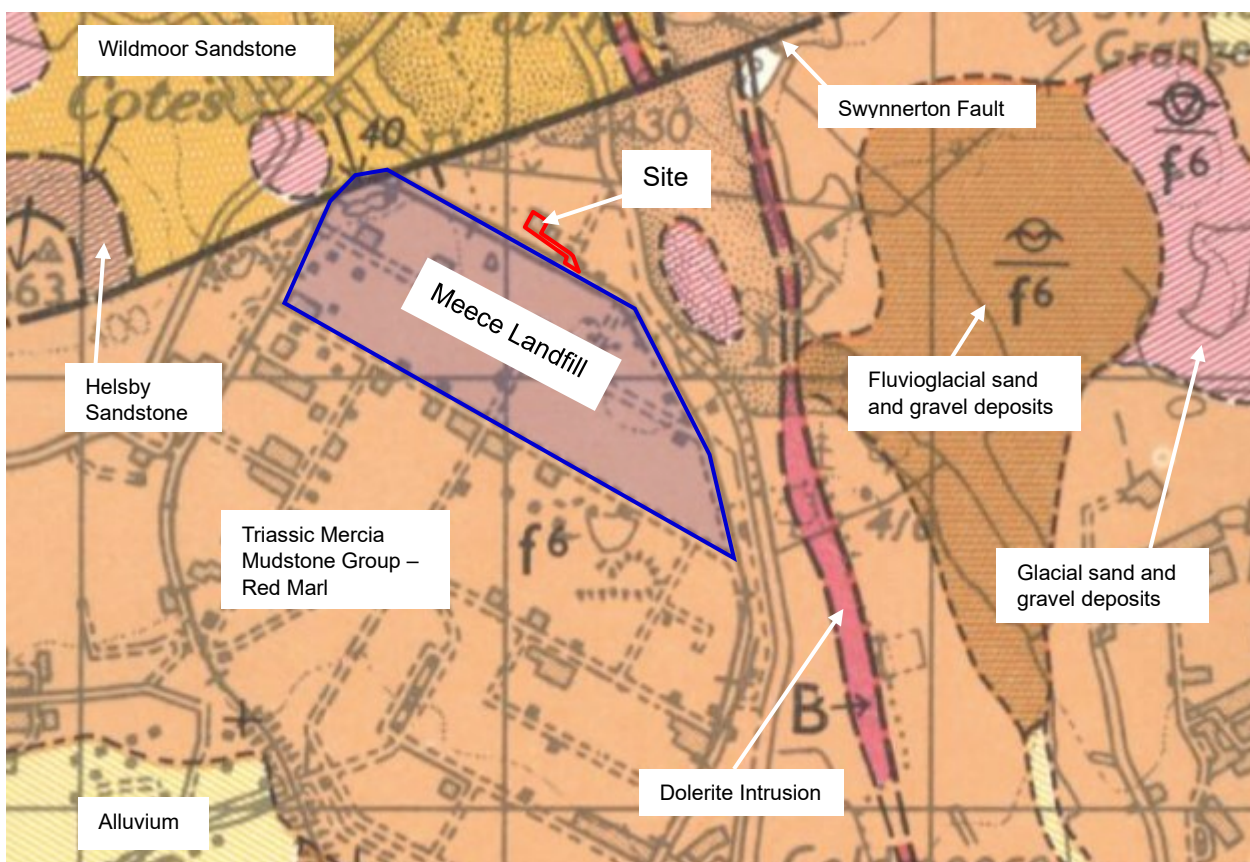
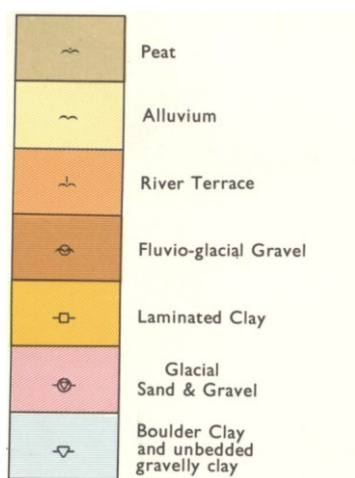
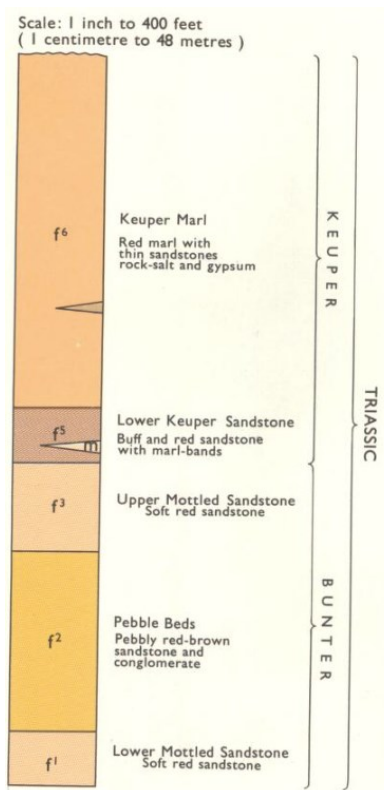


Figure 4 – Geological Key (extract from BGS Map 139, 1974)

Drift Deposits



Bedrock



[2.2.3] Hydrogeology

The Environment Agency classifies different types of aquifers from which groundwater can be extracted¹. The aquifer designations reflect the importance of aquifers in terms of groundwater use as a resource (potable water supply) and also, its role as supporting surface river flows and wetland ecosystems. The Environment Agency has also defined Source Protection Zones (SPZs) for over 2,000 groundwater sources such as wells, boreholes and springs used for public potable water supply.

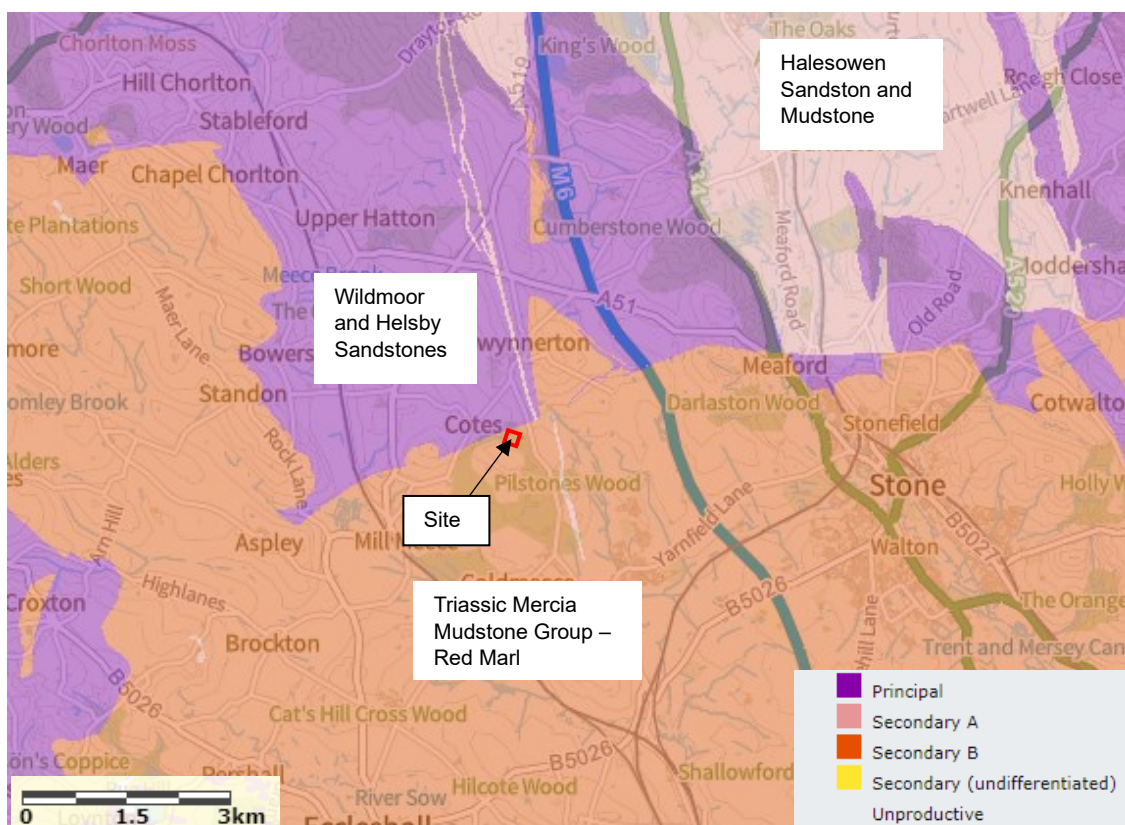
There are no superficial sediments at the site.

The Mercia Mudstone Group is characterised as a Second B Aquifer, defined as aquifers which “are mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers” (Figure 5). The Mercia Mudstone Group is generally of low permeability and transmits groundwater mainly through fractures in the occasional thin, impersistent siltstones and sandstones that are present (referred to as skerries).

The Mercia Mudstone Group confines the groundwater within the underlying Sherwood Sandstone aquifer.

¹ Protect groundwater and prevent groundwater pollution - GOV.UK (www.gov.uk)

Figure 5 – Bedrock Aquifer Designation



The site is not located within a groundwater source protection zone (SPZ). The nearest SPZ (Zone III – total catchment) is circa. 180m to the west of the site and is expected to be associated with the Wildmoor Sandstone Member.

Groundwater flow in the Mercia Mudstone is inferred from monitoring boreholes associated with the Meece Landfill to be towards the south-west. Groundwater levels are at 116 to 120mAOD within the vicinity of the site. Comparative ground levels range from 115mAOD to 126mAOD.

[2.2.4] Hydrology

The Meece Brook is the closest ‘Main River’ to the site. The Meece Brook flows from north-west to south-east and is located approximately 1.4km to the south-west of the site at its closest point. Upstream of the site, the Chatcull Brook converges with the Meece Brook at NGR SJ 82848 33606, directly north of Heronbrook Fishing Pools. The Meece Brook joins with the River Sow some 5.8km to the south-east of the Meece Landfill at NGR SJ87384 28201 (Figure 6).

Closer to the proposed extension area, there are a series of drains which run adjacent to the southern boundary, as well as to the east (Figure 7). There are also several springs positions to the east of Swynnerton Road. Upper Pool Plantation is positioned some 565m to the north of the site and this feeds a drain network which flows towards the east.

Figure 6 – Nearby surface watercourses

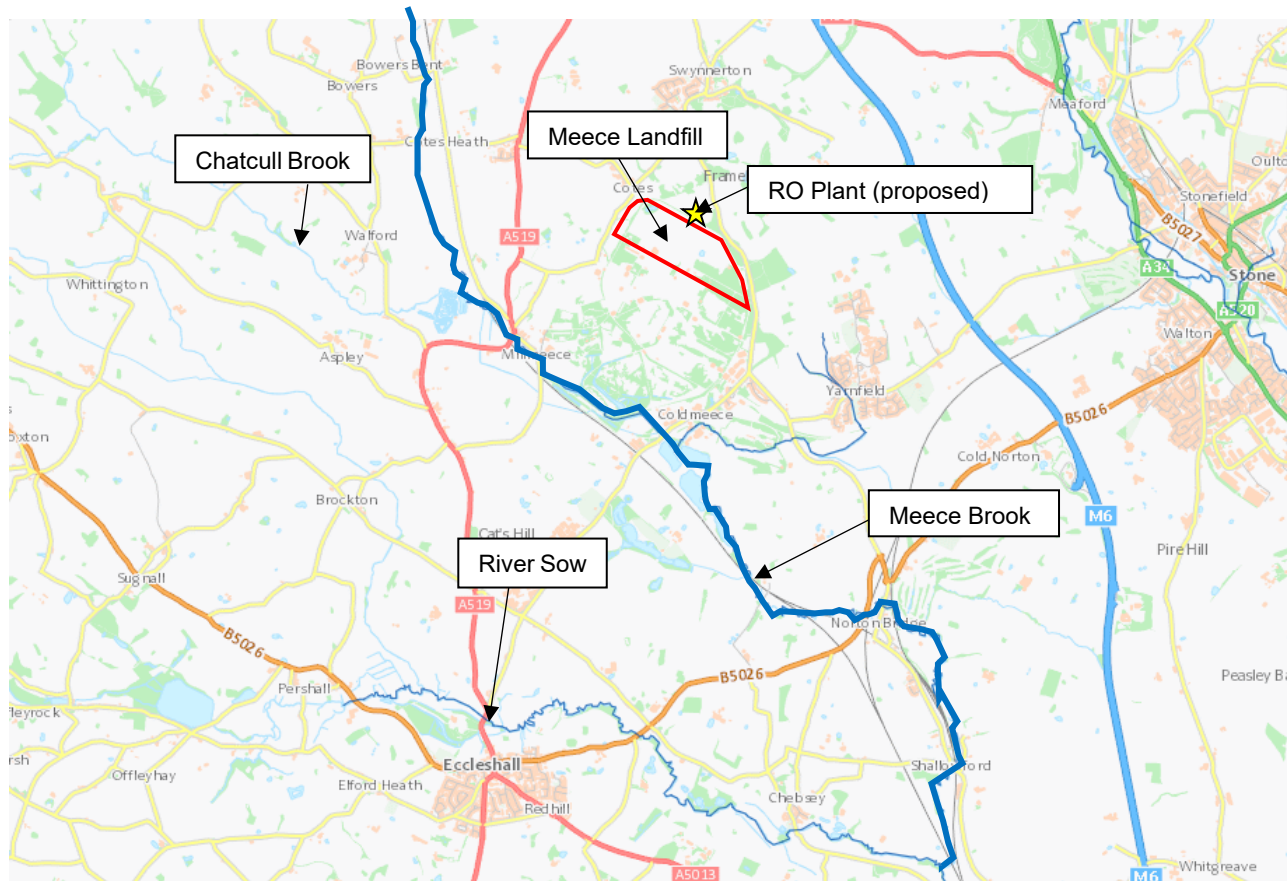
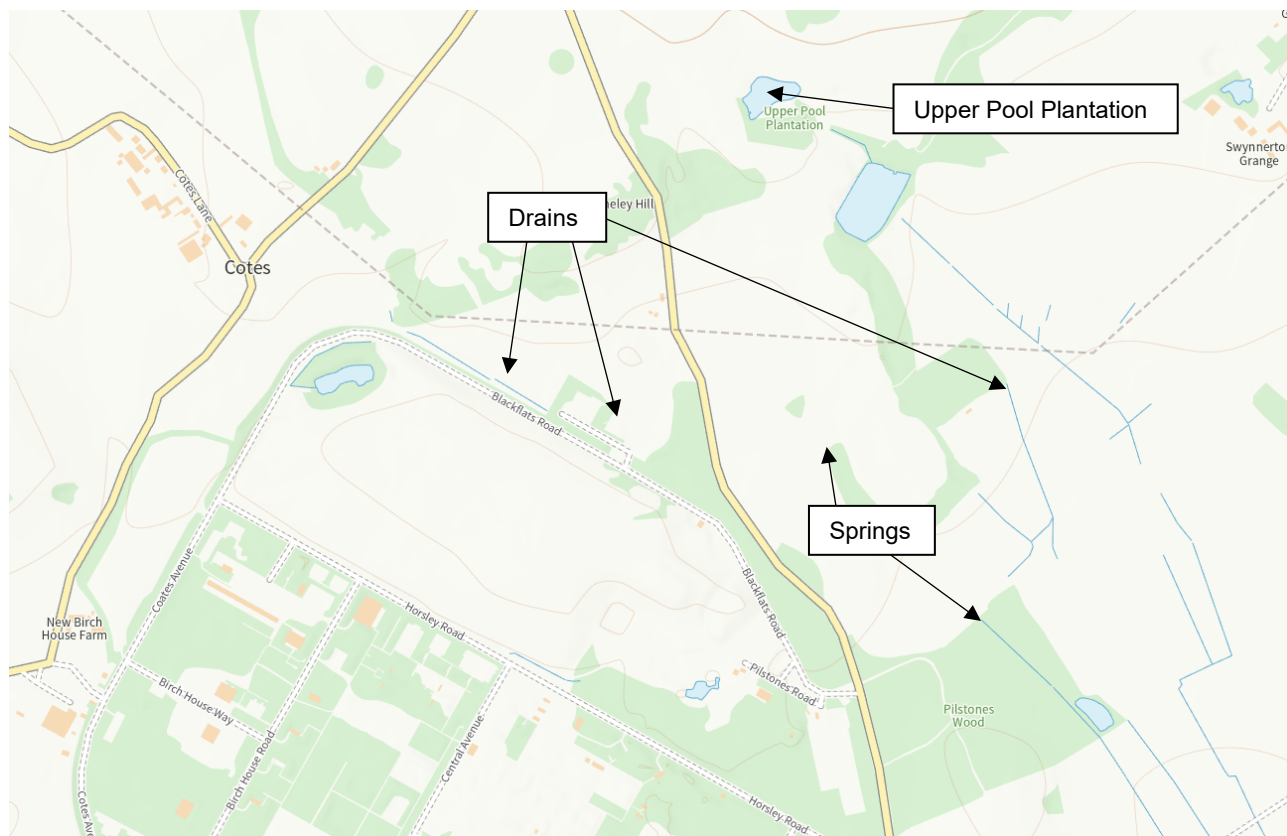


Figure 7 – Other Nearby surface features



According to the Environment Agency's flood risk maps², the extension area is positioned within Flood Zone 1 (0.1% chance of flooding in any year) and has a very low risk of flooding with regards to surface water, sea and rivers.

[2.2.5] Sensitive Sites

A search of DEFRA's Magic Map's website **Error! Bookmark not defined.** did not identify any designated sites within a 1km radius of the proposed extension area.

[3] Pollution Incidents That May Have Had An Impact On Land

There have been no recorded pollution incidents that may have had an impact on the land, air and/or water in this area.

[4] Environmental Monitoring

Groundwater, surface water and ground gas monitoring is carried out in accordance with the Meece 1 Landfill Environmental Permit. The nearest groundwater monitoring locations are BH10 to BH14 as illustrated on Drawing M4180107. There are no surface water monitoring points positioned along the northern boundary of the landfill near to the proposed extension area.

A summary of the groundwater monitoring data collected prior to the development of the extension area is provided within the most recent Hydrogeological Risk Assessment Review for the Meece 1 landfill³.

Additionally, a ground investigation (GI) is being carried out to determine the condition of the land prior to development. This SCR will be updated with further reference data following the completion of the GI.

[5] Site Walkover

A site walkover is being carried out by Swan Environmental as part of a GI to support the development of the extension area. This SCR will be updated with details of this walkover following the completion of the GI.

² <https://flood-map-for-planning.service.gov.uk>

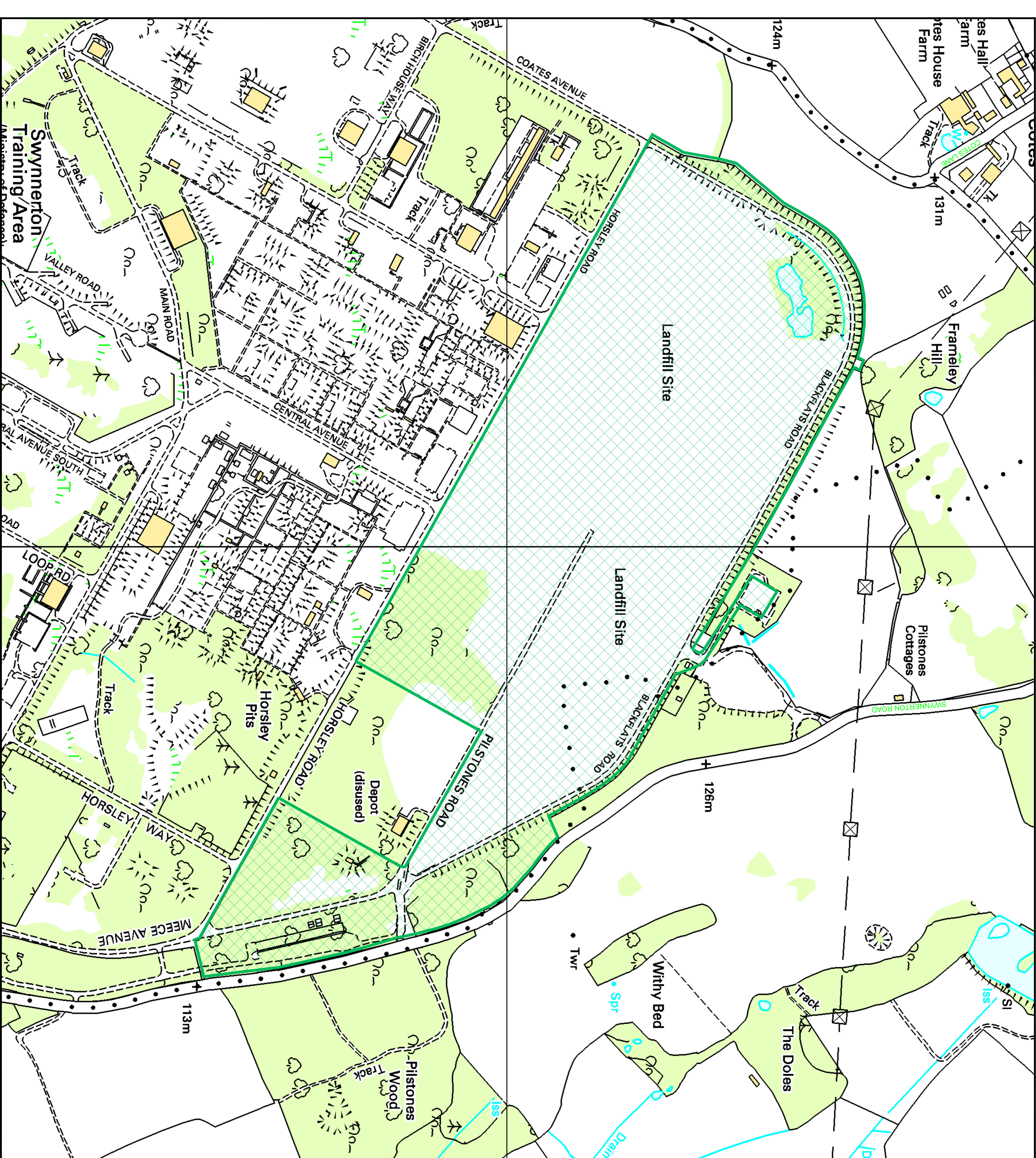
³ Swan Environmental (2023) Meece 1 Landfill Site. Hydrogeological Risk Assessment Review, NS_0115_10


[6] Statement of Site Condition

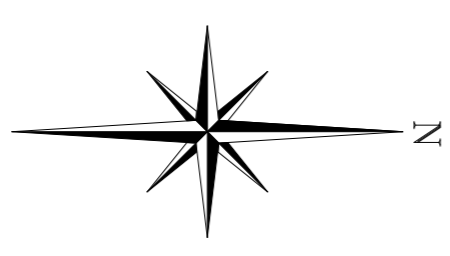
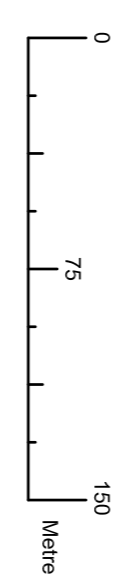
The land was formally developed in relation to the former ordnance depot during the late 1950's and 1960's. The site is shown on aerial photographs to exist as a square area of hardstanding which appears to be related to this former use. The nature of the activities carried out on this hardstanding area are not known. However, given the former use there is the potential for made ground and historical contamination.

Groundwater, surface water and ground gas monitoring data is available for nearby monitoring points associated with the Meece 1 landfill which provide baseline conditions for this area. A GI is also being carried out to establish further baseline information.

Drawings



Legend
 Proposed Permit Boundary

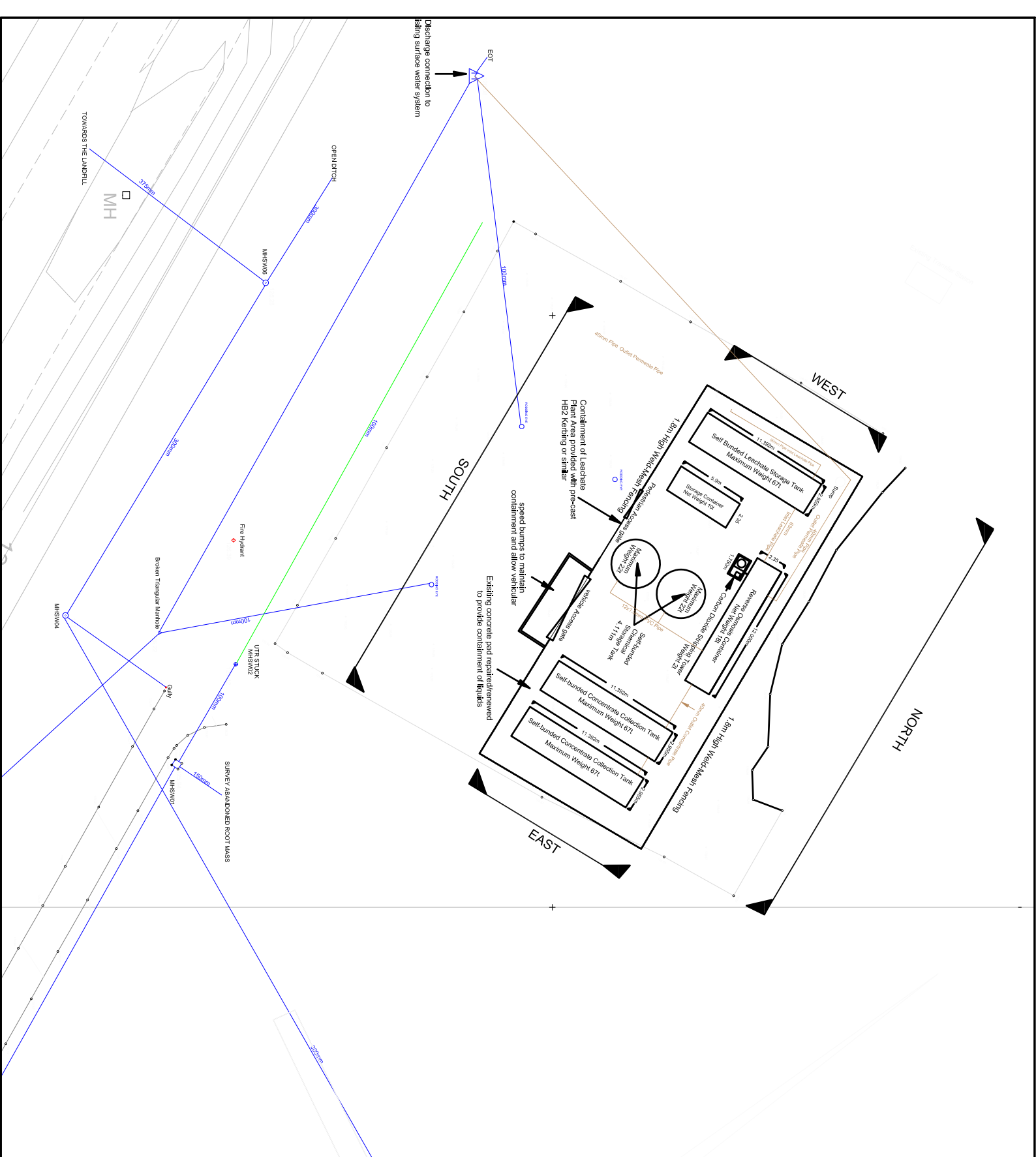


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REV	DATE	DRAWN	DESCRIPTION

Biffa
 Biffa Waste Services Ltd
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 Stationbridge
 WS11 8NQ
 01827 409215
 email: info@biffa.co.uk

PROJECT	PLANNING	DRAWN	MJS
LOCATION	MEECE LANDFILL SITE	DATE	14/03/24
DRAWING TITLE	Meece 1 Landfill Proposed Permit Boundary	SCALE(S)	1:2500 @ A1
DRAWING No.	1	COMPUTER REF.	MA032700



Discharge connection to existing surface water system



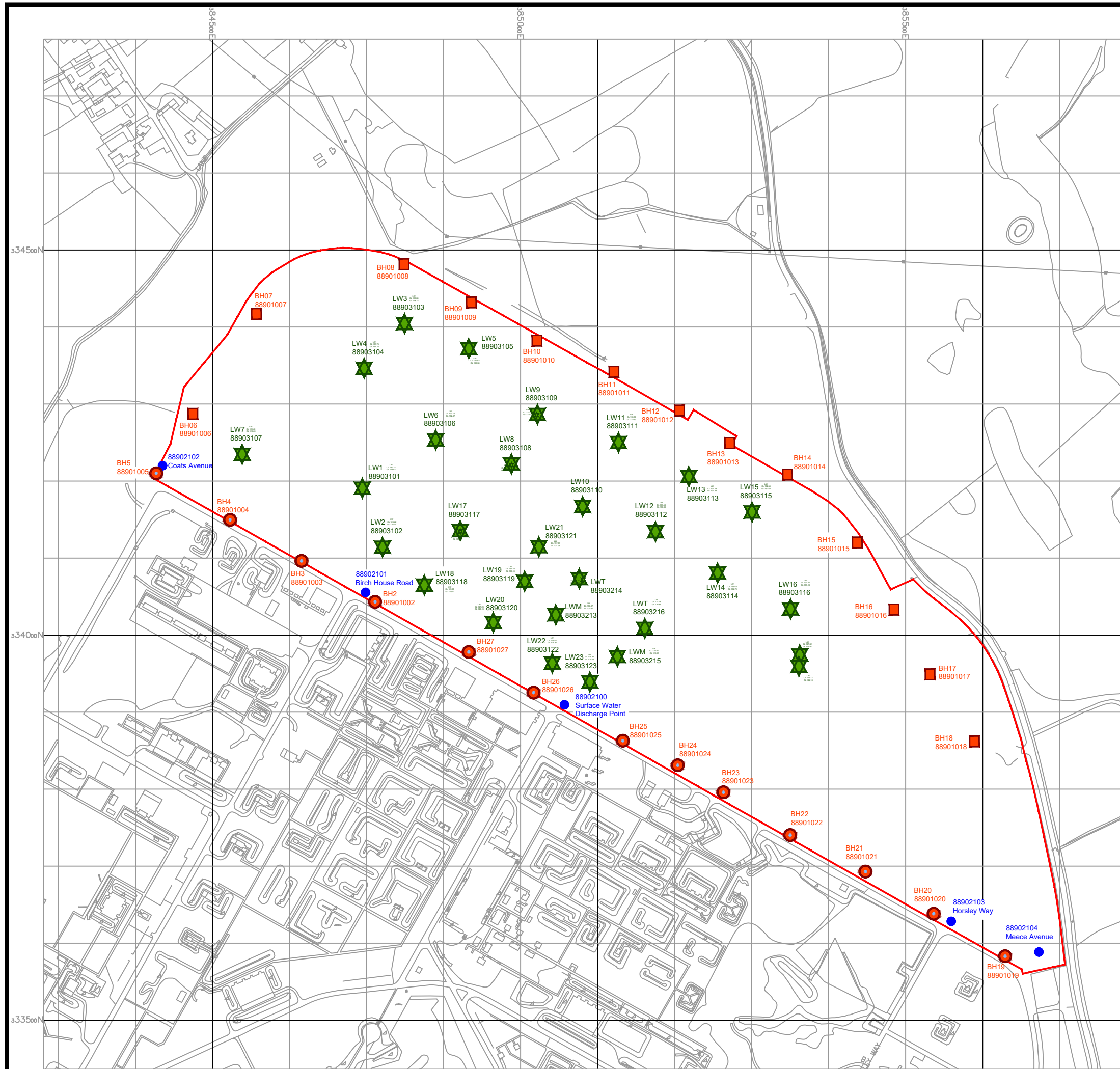
Proposed plan showing the layout of equipment to be installed by permission of the Council of the City of London. The Council is not responsible for the accuracy of the information provided in this plan. The Council is not responsible for the accuracy of the information provided in this plan. The Council is not responsible for the accuracy of the information provided in this plan.











REV	DATE	BY	DESCRIPTION

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 Biffo Water Services Ltd
 Unit 10, The Biffo Centre
 100, The Biffo Centre
 100, The Biffo Centre
 100, The Biffo Centre
 100, The Biffo Centre

PROJECT	PLANNING	DRAWN	M.L.S.
LOCATION	MARCE LANDFILL SITE	DATE	14/03/24
DRAWING TITLE	Proposed Layout	SCALE(S)	1:150 @ A1
COMPONENT REF.	14032300		



-  Installation Boundary
-  Gas Monitoring Borehole
-  Groundwater Monitoring Borehole
-  Gas and Groundwater Monitoring Borehole
-  Leachate Monitoring Point
-  Surface water Monitoring Point
-  Noise Monitoring Point
-  Dust Monitoring Point
-  Asbestos Monitoring Point
-  Asbestos Monitoring Point (Mobile)



Notes:

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REV.	DATE	DRAWN	DESCRIPTION
7	02/02/22	MLS	updated monitoring
6	08/03/21	MLS	updated monitoring
5	13/11/20	MLS	updated monitoring

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PROJECT		Monitoring	
LOCATION		Meece Landfill Plan	
DRAWING TITLE		Monitoring	
DRAWING No.		COMPUTER REF. M4180107	
DRAWN	MLS	DATE	01/02/05
		SCALE(S)	1:5000