

FICHTNER

Consulting Engineers Limited



**VIRIDOR
BEDDINGTON ERF
SITE CONDITION REPORT**

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SITE CONDITION REPORT**

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1 INTRODUCTION

This Site Condition Report is provided in support of an application for a bespoke Environmental Permit for the Beddington ERF.

The installation will consist of a two stream EfW. A more detailed description of the installation is included within the Supporting Information document.

1.1 Site Location

The site is located at Beddington Farmlands, which is located south of Mitcham Common and north of Beddington Park, within the London Borough of Sutton. The site lies 500m metres to the south of the London Borough of Merton and 600m to the west of the boundary of the London Borough of Croydon.

The area identified for the Beddington ERF is fairly flat, and is currently in use as a dry recycle and waste transfer facility, a skip waste recycling compound, part of an in-vessel composting facility and associated vehicle circulation areas and hardstanding.

The application site has historically been used for waste, waste water and minerals extraction. Prior to this the area was in agricultural use.

The site is bounded to the east by sludge beds (part of Thames Water's waste water treatment works) and Beddington Lane beyond, to the west by the railway, to the north by sludge beds and to the south by Beddington Park.

Access to the site will be gained from a new access road linking into the Coomber Way roundabout on Beddington Lane. This is presented in Annex 1 (Phase 8: Restoration Plan).

1.2 Report Objectives

The primary objective of this report is to provide details of the ground conditions for the land within the installation boundary.

This report uses background information from various sources which has been collated in an Envirocheck Report. The Envirocheck Report and additional ground investigation reports are provided in Appendix 1 of this report.

The desktop study considers:

- (1) Geology;
- (2) Hydrogeology;
- (3) Hydrology and Flooding;
- (4) Historical and present land use; and
- (5) Previous site investigations.

This report considers the proposed activities to be carried out on the application site and identifies any land contamination risk the activities pose that may be linked to previous pollution events.

Drawings are included within the Application, including:

- (1) Site location plan;
- (2) Site layout;
- (3) Installation boundary; and
- (4) Process schematic.

These can be found in Annex 1 of the application.

2 CONDITION OF THE LAND AT PERMIT ISSUE

2.1 Geology

As reported in the Envirocheck Report, there are no areas of Artificial Ground and Landslip within the installation boundary. There is a small area of Made Ground (Undivided) immediately to the north east of the installation. There are a number of other areas of Made Ground surrounding the installation. This includes two areas of Infilled Ground located approximately 250m to the east of the installation and one area of Landscaped Ground (Undivided) located approximately 250m to the south of the installation.

As reported in the Envirocheck Report, the British Geological Society (BGS) 1:625,000 map (The BGS map) indicates that the Superficial Deposits beneath the installation boundary is Hackney Gravel Member from the Wolstonian period. These Superficial Deposits are classified as sand and gravels.

The BGS map indicates that the Bedrock/Solid Geology beneath the installation boundary is London Clay from the Eocene period.

The Envirocheck Report does not identify any records of Faults within the installation boundary.

The Envirocheck Report identifies that there are five BGS Recorded Mineral Sites within 1000 m of the installation boundary. All of these extractions are reported as having ceased.

The Envirocheck Report reports that the installation is not located within an area of coal mining.

2.2 Hydrogeology

The Envirocheck Report indicates that the Aquifer within the Superficial Deposits surrounding the installation is regarded as being a Minor Aquifer (variably permeable) – these can be fractured or potentially fractured rocks, which do not have a high primary permeability, or other formations of variable permeability including unconsolidated deposits. Although not producing large quantities of water for abstraction, they are important for local supplies and in supplying base flow to rivers.

2.3 Hydrology and Surface Waters

There will be surface water containment systems included within the installation boundary. This will form part of the Sustainable Urban Drainage System (SUDS) for the installation.

As reported in the Envirocheck Report, the nearest major watercourse to the installation is the River Wandle which is located approximately 900m to the south of the installation boundary.

The Environment Agency operates a General Quality Assessment scheme (GQA) that is a method for nationally classifying river and canal water quality in England and Wales. The scheme provides a way of comparing river quality from one river to another and for looking at changes in river quality over time. The water quality is assessed using a number of criteria including the chemical and biological content of the water, the nutrient availability of the water, and the aesthetic characteristics of the water. The River Wandle between Wandle Park and Wandle is classified as 'River Quality B'.

As identified in the Envirocheck Report, the installation is not at risk of flooding.

The Envirocheck Report Flood Map confirms that the installation does not fall within 500m of a Flood Zone; there are no Flood Defences within 250m of the installation; and there are no areas used for Flood Storage within 250m of the installation.

2.4 Pollution History

2.4.1 Historical Land Use within the Installation Boundary

Historical land use searches show the land associated with this permit application was largely undeveloped fields until 1896. The historical maps show that there was a pathway/roadway which passed through the centre of the installation running in an east westerly direction.

The 1885 map shows a drainage channel running in a north-south direction which bisects the installation. In addition, there is a drainage channel running parallel to the eastern side of the installation boundary.

The 1898 map shows that the drainage channel running in a north-south direction no longer passes through the northern sector of the installation.

The 1935 map shows a Tank in the south eastern corner of the installation. There are no records available of the contents of the Tank.

The 1993 map shows that the land on which the installation will be located was an area of sludge beds.

2.4.2 Historical Incidents

As reported within the Envirocheck Report, there have been:

- Eight pollution incidents to controlled water within 1000m of the installation boundary; and
- Four Substantiated Pollution Incidents within 1000m of the installation boundary.

The nearest pollution incident is located over 100 metres from the installation boundary. It is therefore considered that none of these pollution incidents could influence the ground conditions within the installation.

Viridor can confirm that there is no visual or olfactory evidence of existing contamination within the installation boundary.

2.4.3 Previous Permits & Consents

As reported in the Envirocheck Report:

- There are eight discharge consents located within 1000m of the installation boundary. The nearest consented site is located over 400m from the installation boundary. It is therefore considered that any of the sites with discharge consents could influence the ground conditions within the installation.
- There are records of two IPPC Authorised activities within 1000m of the installation boundary. One of these is located on site – the gas engines associated with the landfill. These are located near to the site, and have been considered within the air quality assessment (refer to Annex 2), however they are not expected to influence ground conditions within the installation. The other IPPC Authorised activity is located over 900m from the installation.
- There are records of 19 Local Authority PPC Authorised activities within 1000m of the installation boundary. The nearest Local Authority PPC Authorised activity is located over 100m from the installation boundary. It is therefore considered that none of these Local Authority PPC Authorised activities could influence the ground conditions within the installation.

- There are six water abstractions within 1000m of the installation boundary. These are not considered to have relevance to the historical ground conditions within the installation.
- There are records of five Historic Landfill Sites within 1000m of the installation boundary. The nearest historical landfill is located over 100m from the installation boundary. It is therefore considered that none of these Historic Landfills could influence the ground conditions within the installation.
- There is one Licensed Waste Management Facility (Landfill boundary) within the installation boundary. This is the existing Beddington Farmlands Landfill Site, which is located on site. There is an additional one within 1000m of the installation boundary. This is located over 500m from the installation boundary and is not considered to influence the ground conditions within the installation.
- There are two Licensed Waste Management Facility's (Locations) within the installation boundary. This is the existing Beddington Lane Composing facility operated by Viridor. There are an additional nine within 1000m of the installation boundary. The nearest is located over 200m from the installation. It is not considered that any of these facilities will influence the existing ground conditions within the installation.
- There is one Local Authority Recorded Landfill site within 1000m of the installation boundary. The nearest Local Authority Recorded Landfill site is located over 100m from the installation boundary. It is therefore considered that this Local Authority Recorded Landfill site could influence the ground conditions within the installation.
- There are two Registered Landfill sites within 1000m of the installation boundary. The nearest Registered Landfill site is located over 300m from the installation boundary. It is therefore considered that this Registered Landfill site could influence the ground conditions within the installation.
- There are seven Registered Waste Transfer Sites within 1000m of the installation boundary. The nearest Registered Waste Transfer site is located over 150m from the installation boundary. It is therefore considered that this Registered Waste Transfer site could influence the ground conditions within the installation.
- There are two Registered Waste Treatment or Disposal Sites within 1000m of the installation boundary. The nearest Registered Waste Treatment or Disposal site is located over 300m from the installation boundary. It is therefore considered that this Registered Waste Treatment or Disposal site could influence the ground conditions within the installation.
- There is one Planning Hazardous Substance Consent within 1000m of the installation boundary. This is located over 900m from the installation boundary. It is therefore considered that this Planning Hazardous Substance Consented site could influence the ground conditions within the installation.

2.4.4 Previous Contamination and Site Investigations

At the time of producing this report, there are no records available of intrusive investigations associated with the land within the installation boundary.

3 PERMITTED ACTIVITIES

3.1 Proposed Permitted Activities

As stated within the Supporting Information for the application, the installation will include installation activities (as defined in the Environmental Permitting Regulations) with directly associated activities and a waste transfer station. The activities being applied for are presented in Table 3-1.

Table 3-1: Environmental Permit Activities		
Type of Activity	Schedule Activity	Description of Activity
Incineration Line 1	5.1 Part A (1) c)	Incineration Line 1 and 2 – the incineration of residual wastes with a combined nominal operating capacity of 35.22 tonnes per hour
Directly Associated Activities		
Directly Associated Activities		Acceptance of waste to the installation.
Directly Associated Activities		Dewatering of gulley waste
Directly Associated Activities		The abatement of emissions to air from the installation.
Directly Associated Activities		The export of heat and electricity from the installation.

3.2 On-site Fuel and Chemical Storage Facilities

As identified in the supporting information document, the activities undertaken on site will utilise a number of fuels and chemicals. The primary, secondary and tertiary containment systems associated with the storage of these materials are presented in Table 3-2.

Substance	Number of Storage Facilities	Primary Containment	Secondary Containment	Tertiary Containment
Gas Oil	1	Tank	Impervious bunding (110% capacity of the storage tank)	Concrete hardstanding
Urea	1	Silo	Concrete hardstanding	
Lime	1	Silo	Concrete hardstanding	
Activated carbon	1	Silo	Concrete hardstanding	
Other boiler treatment chemicals			Impervious bunding (110% capacity of the storage tank)	Concrete hardstanding

The facilities identified above will be designed in accordance with the Environment Agency Pollution Prevention Guidelines, including:

- PPG1 - General guide to the prevention of pollution;
- PPG2 - Above Ground Oil Storage Tanks;
- PPG 21 - Incident Response Planning; and
- PPG 22 - Dealing with spills.

3.3 Environmental Risk Assessment

An Environmental Risk Assessment has been carried out following the Environment Agency Horizontal Guidance Note H1. This is included within Annex 3 of the Environmental Permit Application. The assessment considers all potential sources of ground and surface water pollution that could occur due to fugitive emissions from the facility or from accidents occurring at the facility. The risk assessment also details any mitigation measures that will be employed to reduce the frequency or impact of these events.

The land use and pollution history of the site has been considered in this desk study.

The Environmental Risk Assessment identifies that the development will require the storage of various chemicals, which could pose a risk to the ground and groundwater during normal operation. All process areas, loading/unloading, materials handling areas and roadways will be covered in concrete and/or tarmac hardstanding. It is therefore not regarded that there will be any risk of ground/groundwater contamination during normal operation of the installation.

The Environmental Risk Assessment concluded that for land, groundwater and surface water, the residual impacts of the facility would be insignificant provided the recommended mitigation measures are employed.

It is therefore concluded that the installation will pose little risk of pollution.

3.4 Conclusion

For the reasons stated within this report, it anticipated that there will be little risk of pollution associated with the installation and its directly associated activities.

During the Operational phase of the installation, as required by the permit, any records which demonstrate how the land and groundwater have been protected will be maintained. This information will include inspection records of site infrastructure, pollution/incident reports, records of any ground investigations undertaken, and any monitoring records of soil, gas and/or water during the life of the permit. Where it is identified that pollution has occurred records will be maintained to demonstrate any pollution incidents that may have affected the land or groundwater. These records will be retained to be used at Permit Surrender.



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