MOTT MACDONALD

Budds Farm Sludge Treatment Centre Environmental Permit Application

Main Supporting Document
790101_MSD_Main_BUD

January 2025

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Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	05/01/2022	Olivia Ellson	Shannon Stone	Anita Manns	First Draft
B	15/02/2022	Natalia Cunningham	Shannon Stone	Anita Manns	Second Draft
C	22/03/2022	Natalia Cunningham	Shannon Stone	Anita Manns	Final
D	February 2024	Isobel Moss Shannon Stone	David Dray	Anita Manns	Revision for client comment
E	February 2024	Isobel Moss	David Dray	Anita Manns	For EA submission
F	January 2025	Anita Manns	Claire Cowdrey	Anita Manns	Updated for NDM RfI Response Dec 24

Document reference: 790101_MSD_Main_BUD January 2025

Information class: Standard

Contents

Tables

1 Non-technical summary

1.1 Overview of the site and activities

Budds Farm is a Sludge Treatment Centre (STC) (also known as the “Site”) and an associated Wastewater Treatment Works (WTW. The address of the Site is Southmoor Lane, Havant, Hampshire, PO9 1JW with the National Grid reference: SU 70722 05539.

The WTW is operated under the Urban Wastewater Treatment (England and Wales) Regulations 1994 and has a standalone Water Discharge Activity Environmental Permit, that will remain an independent permitted activity.

The STC operation is a non-hazardous waste activity which is currently carried out under registered S1, D5, S2 and U6 exemptions. The waste activity comprises imports, physio-chemical and anaerobic digestion treatment, and the storage of waste, all for recovery purposes. The STC handles waste derived from the wastewater treatment process, either indigenously produced on-site or imported from other Southern Water owned assets.

The site currently has two Environmental Permits in operation. Permit EPR/AP3392HG is a tankered waste permit existing on-site and permit EPR/ZP3235XJ, allows for the running of two biogas fuelled combined heat and power (CHP) engines. The CHP engines generate electricity for the site, one is classed as a tranche A and one as a tranche B. Several directly associated activities (DAAs) are also permitted and include sludge and cake reception, storage and blending, treatment of grit and screenings and dewatering.

Southern Water wishes to vary permit EPR/KB3435RB into an installation permit for the Site into a single consolidated permit to include:

- Anaerobic digestion of sludge
- Acceptance of waste to the head of the works (as a waste activity)

The CHPs and boilers will be DAA’s to the installation activity, with an additional waste activity for the acceptance of waste to the head of the works.

Anaerobic digestion of sludge

As advised by the Environment Agency through consultation at WaterUK Waste and Recycling Network and a letter sent to all Water and Sewage Companies at director level in July 2019, Southern Water is applying to vary the above mentioned existing bespoke permits into a Bespoke Installation Permit for the STC waste activity. Following a joint decision made by Environment Agency and DEFRA that AD treatment facilities at WTW STCs are covered by the Industrial Emissions Directive and can no longer operate under standard environmental permits or exemptions.

The primary permitted installation activity will be the AD treatment facility. The AD facility will treat indigenously produced and imported sludges. Permitted Directly Associated Activities (DAAs) will be the import of waste from other WTW assets; the physio-chemical treatment of imported and indigenously produced sludges; the storage of indigenously produced sludges, imported sludges and the sludge cake from the AD facility; the storage of biogas derived from the AD treatment of waste and the combustion of biogas in an on-site Combined Heat and Power plant (CHP). In the event the CHP cannot run in an emergency or due to operational issues, biogas will be combusted via an on-site flare stack and/or back-up boiler system.

Acceptance of liquid sludge waste (digestate) at post digestion, for dewatering.

Post digested liquid sludge (digestate) from other Southern Water sites enters at the post digestion tanks, for dewatering at the centrifuges. The process aligns with the process description of the anaerobic digestion from the post digestion tanks onwards. The activity is a contingency measure, whereby there is limited capacity at other sites to dewater digestate, for example process shutdown.

Acceptance of waste to the head of the works

Southern Water wishes to remain able to accept waste to the head of the works. This is currently carried out under permit AP3392HG. The tankered liquid waste is discharged to the dedicated reception facilities, before joining the incoming, indigenous flows, from the sewer network, into the head of works to be treated through the WtW. The total annual tonnage to be accepted will remain at 339,202 wet tonnes.

1.2 Overview of the STC process

Budds Farm STC is the largest STC operated by Southern Water and currently treats indigenous sludge from Havant and Eastney Wastewater Pumping Stations (WPS), as well as accepting imported liquid sludge and sludge cake.

Imported raw sludge cake is discharged into the raw cake reception point and then blended with surplus activated sludge (SAS) from the 2 No. SAS tanks (979m^3 each) before being pumped to the 2 No. thickened sludge storage tanks (866m^3 each).

The fraction of SAS not blended with imported raw cake is thickened by 5 No. drum thickeners before being stored in the 2 No. thickened sludge storage tanks (866m^3 each).

Imported liquid sludge is received in 1 No. sludge reception tank (142m^3). Indigenous sludge is transferred to 2 No. sludge holding tanks (156m^3 each). It then joins the imported liquid sludge as it is pumped through 2 No. strain presses and stored in 2 No. screened sludge storage tanks (135m^3 each). From here it is passed through 2 No drum thickeners before being stored in the 2 No. thickened sludge storage tanks (866m^3 each).

Thickened sludge is fed to 5 No. anaerobic digesters (2750m^3 each) operating between 33 to 38ºC. The temperature is automatically maintained by heat exchangers. All tanks capable of producing biogas are sealed and connected to the biogas system.

Digested sludge is transferred to 2 No. post digestion storage tanks (866m^3 each) before being dewatered by 3 No. centrifuges. Lime is injected to digested sludge during dewatering which enables digested sludge cake to be disposed to farmland directly from 1 No. cake storage silo (220m^3).

Biogas produced from these tanks are stored within 1 No. biogas holder (2100m^3) before being combusted at high temperatures within 2 No. CHPs (1 No. 5.04MWth and 1 No. 2.59MWth) or 3 No. dual fuel boilers (2.81MWth each) where it is used to generate heat (i.e. to control the temperature of the digestion process) and electricity for the Site. Excess gas is burned in the 1 No. flare stack.

SAS and raw sludge thickener filtrate, centrate from the dewatering centrifuges and biogas condensates all gravitates to the liquor sump. The sludge liquor is then routed to the Havant PST flow distribution chamber.

All tanks and key equipment are covered or enclosed and connected to either the biogas system or OCU.

Odour from the main sludge treatment building, containing the sludge cake reception and all primary sludge treatment processes is controlled via 1 No. Odour Control Unit (OCU), a

chemical scrubber system with total flow rate of 53,100 m^3/hour (there is no carbon filter). Treated odour streams are discharged into the environment through OCU stack and are monitored hourly to ensure the absence of odorous compounds.

A Cobra Odourmaster Mobile unit is retained on site for emergency or unexpected odour and/or dust emissions, this unit sprays a fine mist which suppresses odour and dust.

Treated air is dispersed via a 14m stack to the atmosphere, process parameters including pH, chlorine concentration, redox value and chemical tank levels are continuously monitored and trended on the Supervisory Control and Data Acquisition (SCADA) system.

The specifications of the combustion plant are presented in Table 1.1.

Table 1.1: Combustion Plant Details

	CHP1	CHP2	Boiler 1, 2, 3
Make/Model Number	CAT G3520	MTU 12V4000L32FB	Strebel Boiler RU3S 11
Date that MCP became operational/was commissioned	April 2008	2017	2002
Thermal Input (MWth)	5.04	2.59	2.81
Stack height (m)	15	8.3	15
Fuel used (biogas, diesel etc)	Biogas	Biogas	Biogas or natural gas
Estimated total hours of operation per year **(based on data collected between May 2023-May 2024)**	Unrestricted	Unrestricted	Boiler 1: 1261 Boiler 2: 542 Boiler 3: 332
MCPD and SG Regs status	Existing MCP Tranche A	Existing MCP Tranche B	Existing MCP

The IED permit will include:

- 5 No. Anaerobic digesters (2,750m^3 each) (covered)
- 2 No. Strainpresses (covered)
- 2 No. sludge holding tanks (156m^3 each) (covered)
- 2 No. screened sludge storage tanks (135m^3 each) (covered)
- 2 No. thickened sludge storage tanks (TSST) (866m^3 each) (covered)
- 2 No. post digestion storage tanks (PDST) (866m^3 each) (covered)
- 2 No. surplus activated sludge (SAS) holding tanks (979m^3 each) (covered)
- Reception areas:
    - 3 No. Tankered waste reception areas (for cess, chemical toilet and tankered trade waste)
        - Tankered waste reception area 2 also includes 1 No. tankered trade waste reception tank (1032m^3)
    - 1 No. Cake waste reception area (covered)
    - 1 No. Sludge reception area including 1 No sludge reception tank (142m^3) (covered)

- 1 No. Cake silo (220m^3) (covered)
- 1 No. Alternative cake bay (40 tonnes) (covered)
- 7 No. Drum thickeners (covered)
- 3 No. Dual fuel boilers (biogas/natural) (2.81MWth each)
- 2 No. CHP units (1 No. 5.04MWth and 1 No. 2.59MWth)
- 1 No. Biogas burner (flare stack)
- 1 No. Gas bag holder (2,100m^3)
- 1 No. OCU (wet chemical scrubber system – no carbon filter)
- 3 No. Centrifuges (covered)
- 1 No. Liming tank (21m^3) (covered)
- 2 No. Alternative sludge holding tanks (784m^3 each) (covered)

The following are the outputs from the process:

- Liquors from the STC process are recirculated through the WTW system via the Havant PST flow distribution chamber.
- Screenings and grit – deposited into skips before being removed off-site.
- Biogas – stored in an existing gas holder, then either:
  - Burnt in the CHP or back-up boilers to generate electricity for use on-site
  - Flared in the waste biogas burner.
- Cake – stored in a cake storage silo prior to being shipped off-site for recycling to agriculture (soil conditioner).

1.3 Summary of key technical standards

Table 1.2 lists the technical guidance notes (TGNs) used to inform the techniques and measures proposed to prevent and reduce waste arising and emissions of substances, including during periods of start-up and shut down, momentary stoppage and malfunction, and leaks.

Table 1.2: Part C3, Question 3a, Table 3a: Technical standards

Installation name	**Budds FarmSTC**	
C3 – Installation		
Description of the schedule 1 activity or directly associated activity	**Best available technique (BATC, BREF or TGN reference)**	**Document reference**
Section 5.4 non-hazardous waste installation - anaerobic digestion installation regulated under the Industrial Emissions Directive, utilisation biogas for energy	• Biological waste treatment: appropriate measures for permitted facilities • Non-hazardous and inert waste: appropriate measures for permitted facilities	• https://www.gov.uk/guidance/biological-waste-treatment-appropriate-measures-for-permitted-facilities/1-when-appropriate-measures-apply • https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities
Section 5.4 non-hazardous waste installation – liquor treatment.		
B4 – Waste activities		
Description of the waste operation	**Appropriate measure (TGN reference)**	**Document reference**

Installation name	Budds FarmSTC	
Acceptance of digestate for dewatering	• Non-hazardous and inert waste: appropriate measures for permitted facilities • Biological waste treatment: appropriate measures for permitted facilities	• https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities • https://www.gov.uk/guidance/biological-waste-treatment-appropriate-measures-for-permitted-facilities/1-when-appropriate-measures-apply
General		
All activities	**Guidance**	**Document reference**
	• Monitoring stack emissions: technical guidance for selecting a monitoring approach • M1 sampling requirements for stack emission monitoring • Environment Agency environmental permitting guidance, including: • Risk assessments for your environmental permit • Energy efficiency (Energy efficiency for combustion and energy from waste power plants) • Noise assessment and control • H4 Odour management • H5 Site condition report • Control and monitor emissions for your environmental permit	• https://www.gov.uk/guidance/monitoring-stack-emissions-technical-guidance-for-selecting-a-monitoring-approach • https://www.gov.uk/government/publications/m1-sampling-requirements-for-stack-emission-monitoring • https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit • https://www.gov.uk/guidance/energy-efficiency-standards-for-industrial-plants-to-get-environmental-permits • https://www.gov.uk/government/publications/noise-and-vibration-management-environmental-permits • https://www.gov.uk/government/publications/environmental-permitting-h4-odour-management • https://www.gov.uk/government/publications/environmental-permitting-h5-site-condition-report • https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit

1.4 Revisions since 2022 application submission

The application was first submitted in 2022. This Main Supporting Document includes details that have been updated following feedback received over the past three years in relation to IED permit applications for the anaerobic digestion of sewage sludge. Table 1.3 provides a summary of the stand-alone documents included as part of this application, and the amendments where applicable. Where a document has not been amended due to it being remaining applicable, the original reference number remains unchanged. Where a document has been updated this document will supersede any previous versions.

Table 1.3: Summary of revisions

Document name	Latest document reference	Summary of amendments
Main supporting document	790101_MSD_Main_BUD January 2025	Resubmitted – updated to include wider feedback from the Environment Agency and response to Request for Information December 2024.
Environmental Risk Assessment	790101_ERA_BUD January 2025	Resubmitted – updated to include the addition of 'firewater' management into App B table, flare and CHP information and incidents of storming.
Environmental Constraints Maps	790101_ERA_Maps_BUD February 2024	Resubmitted. Human receptor map screening distance increased to 2km
Bio-aerosol Risk Assessment	790101_ERA_BioaRA_BUD February 2024	Resubmitted – updated to include bio-aerosol monitoring proposals and new windrose.
Odour Management Plan	790101_ERA_OdourMP_BUD January 2025	Resubmitted – updated to include feedback from the Environment Agency and response to Request for Information December 2024.
Climate Change Risk Assessment	790101_ERA_CCRA_BUD	No change. To be included as part of the management system for the site.
Site Condition Report	790101_MSD_SCR_BUD January 2025	Site scope defined and screening distances clarified in relation to STC permit boundary. Updated in response to Request for Information December 2024.
BAT analysis	790101_MSD_BAT_BUD January 2025	Resubmitted – updated to include changes by Southern Water and wider feedback from the Environment Agency and response to Request for Information December 2024.
Site Layout and Location Plan	790101_MSD_SiteLayoutPlan_BUD January 2025	Resubmitted – updated to reflect proposed secondary containment, liquor transfer point, liquor sampling point and changes to point source emissions in response to Request for Information December 2024.
Drainage Plan	790101_MSD_DrainagePlan_BUD	No change
Schematics	790101_MSD_Schematics_BUD January 2025	Resubmitted – updated to include separation of AD and waste activities in response to Request for Information December 2024
Environmental Management System Certificate	790101_MSD_EMS December 2023	Resubmitted. Certificate has been renewed.
Relevant Offences	790101_MSD_RelevantOffences December 2023	Updated to December 2023.
Details of Directors	790101_MSD_Directors February 2024	Up to date at time of resubmission in February 2024.
Competency assessment certificates	790101_MSD_CompetencyAssessmentCertificates	Retracted, and replaced with Competency Management System.
Competency Management System	790101_MSD_CMS December 2023	Substitutes CoTC assessment certificates
Material Safety Data Sheets	790101_MSD_MSDS_BUD February 2024	Updated at time of resubmission in February 2024.
Leak Detection and Repair Plan	790101_MSD_LDAR_BUD February 2024	Additional document

Duty of Care	790101_MSD_DutyofCare_BUD February 2024	Additional document but superseded by the Waste Acceptance document listed below.
Waste Acceptance	790101_WasteAcceptance_BUD January 2025	Additional document - supersedes 790101_MSD_DutyofCare_BUD February 2024
CIRIA assessment and modelling	790101-MMD-IED-BUD-CA-C-001-IED ADBA tool P02 January 2025	Additional document. updated as part of response to Request for Information December 2024 Supersedes 790101-MMD-IED-BUD-CA-C-001 Do nothing(Tank Failure Only) 790101-MMD-IED-BUD-CA-C-001 Do nothing(With Rainfall) 790101-MMD-IED-BUD-CA-C-001 Option 1(Tank Failure Only) 790101-MMD-IED-BUD-CA-C-001 Option 1(With Rainfall) 790101-MMD-IED-BUD-CA-C-001 Option 2(Tank Failure Only) 790101-MMD-IED-BUD-CA-C-001 Option 2(With Rainfall)
Residue Management Plan	790101_MSD_ResidueMP_BUD January 2025	Updated to include wider feedback from the Environment Agency and responses to Request for Information from other sites.
Accident Management Plan	790101_MSD_AMP_BUD February 2024	Additional document.
Updated containment overview	790101_MSD_ContainmentOverview_BUD February 2024	Additional document – Superseded by 790101-MMD-IED-BUD-CA-C-001-IED ADBA tool P02 January 2025.
Implementation Plan	790101_MSD_ImplementationPlan December 2023	Additional document
Form Part A	790101_App_PartA_BUD	No change
Form Part B4	790101_App_PartB4_BUD January 2025	Additional document, in response to Request for Information December 2024
Form Part C2	790101_App_PartC2_BUD	No change
Form Part C3	790101_App_PartC3_BUD	No change
Form Part B6	790101_App_PartB6_BUD	Additional document (not previously required)
Form Part F1	790101_App_PartF1_BUD	No change
Envirocheck Report	790101_MSD_SCR_BUD_AppB_Envirocheck	Additional document, updated as part of response to Request for Information December 2024
Waste transfer notes	790101_WasteTransferNotes_BUD January 2025	Additional document, updated as part of response to Request for Information December 2024
Sampling proposal	790101_Sampling proposal_BUD January 2025	Additional document, updated as part of response to Request for Information December 2024
Appropriate Measures Assessment	790101_Appropriate Measures_BUD January 2025	Additional document, included as part of response to Request for Information December 2024

2 Introduction

2.1 Overview

This document has been prepared to support the application to vary permit EPR/AP3392HG and consolidate EPR/ZP3235XJ. It is intended that imported non-hazardous Southern Water owned tankered waste disposal activity, specified generator and AD Installation waste recovery activity will be separate listed activities on a single consolidated Installation permit at Budds Farm Wastewater Treatment Works (WTW) and Sludge Treatment Centre (STC) ('the Site') on behalf of Southern Water Services Limited ('Southern Water' or 'the Operator').

Following the joint Environment Agency and Department for Environment, Food and Rural Affairs (DEFRA) decisions that AD treatment facilities at WTWs and STCs are covered by the Industrial Emissions Directive (IED) the intent of the application is to ensure the Site is permitted in line with the IED and the EPR 2016, as amended.

This document contains a description of the Site, the proposed permitted activities and Directly Associated Activities (DAAs), an assessment of the possible effects of these activities and responses to questions in Parts A, C2, C3, B6 and F1 of the application documentation (plus supporting information where required). Completed forms Part A, C2, C3, B6 and F1 are included as separate documents.

2.2 Document content and structure

The following application forms have been complete to support the application and have been submitted as stand-alone documents:

- Part A: About You (Document reference 790101_App_PartA_BUD)
- Part B4: New bespoke waste operation (Document reference 790101_App_PartB4_BUD January 2025
- Part C2: Varying a bespoke permit (Document reference 790101_App_PartC2_BUD)
- Part C3: Variation to bespoke installation permit (Document reference 790101_App_PartC3_BUD)
- Part B6: New bespoke water discharge activity or groundwater activity (point source discharge) or point source emission to water from an installation (Document reference 790101_App_PartB6_BUD)
- Part F1: Charges and declarations (Document reference 790101_App_PartF1_BUD)

The main body of the Permit application document ('the Main Supporting Document') includes all the supplementary information required in response to relevant questions within the Part A, Part B4, Part C2, Part C3, Part B6 and Part F1 application forms for which there was insufficient space on the forms to answer the questions in full.

The Environmental Permit variation application document ('the Main Supporting Document') consists of two main parts:

- Chapter 5 provides the general information required to inform Part C2 relating to the variation of bespoke permit; and
- Chapter 6 provides the more detailed information required to inform Part B4, Part C3 relating to the variation of a bespoke installation permit.
- Chapter 7 provides the more detailed information required to inform Part B6.

Part F1 covers the required financial information required for payment of the application fee.

Additional information included as part of this submission and not as stand-alone documents, are found in the following appendices:

- Appendix A – European Waste Catalogue (EWC) Codes

3 Process Description of wastewater treatment and sludge treatment

3.1 Wastewater treatment works

This subsection has been provided for context only.

Budds Farm WTW catchment serves a population equivalent to 382,570 from two sub-catchments of Portsmouth and Havant.

Sewage from the Portsmouth sub-catchment is collected by gravity sewers and rising mains which converge at Henderson Road, Eastney WPS. The crude sewage is received from low-level and high-level inlets. Flow at the low-level inlet is lifted by four low-level pumps in the low-level WPS and combines with the sewage from the high-level inlet. Flows more than 1,379 l/s overflow from the storm weir to two storm screens with a bypass rotating bar screen. Screened storm sewage is lifted by three high-level Storm Pumps to Fort Cumberland WPS. The storm sewage passes four storm screens again and stored in two Storm Tanks with sixteen sections. Stored storm sewage at Fort Cumberland WPS is returned to Eastney WPS via the same rising main by gravity when the flow is less than 1,334 l/s. When the storm tanks are full, excess stormed storm sewage is discharged to short sea outfall of the Langstone Harbour. Flows up to 1,379 l/s pass through three 6 mm, 2D screens followed by two detritors.

Screened and de-gritted sewage up to 1,379 l/s is pumped by four high-level Transfer Pumps to Budds Farm WTW via an 1,100 mm diameter, 14,540 m long rising main. The pumped sewage from Eastney is received at Budds Farm at the inlet chamber of five Spiral Separators. According to design, the sewage is dosed with ferric and polymer and then settled in the Spiral Separators. The Spiral Separators are auto-desludged by two PC pumps. Settled sewage then gravitate to the Combined Lift Pumping Station (CLPS). Currently the Spiral Separators are not operational so the crude sewage from Eastney gravitates to the CLPS.

Sewage from Havant sub-catchment is collected by gravity sewers. Sewerage is received at the site from two 600 mm, a 1,650 mm and a 525 mm diameter gravity sewer. Sewage is also received from Stock Haying Island WPS via a 900 mm diameter, 3,106 m long rising main. There is also a small terminal pumping station, Penner Road WPS, which pumps sewage to the works via a 125 mm diameter, 282 m long rising main. The sewage from gravity sewers combines at Pumping Station No 3 (PS3).

Flows more than the permitted FFT are lifted by two storm pumps (with a shared standby pump) from PS3 to five storm band screens, each rated at 1,000 l/s. Screened storm sewage gravitates to the storm inlet chamber. Excess storm sewage more than 1,800 l/s is discharged to the CSO (The Brockhampton Creek). Combined storm flow up to 1,800 l/s passes storm flow measurement and enters four storm tanks. Settled storm sewage is returned to PS3 by gravity. When the storm tank is full, settled storm sewage more than 983 l/s overflow to the Combined Sewer Overflow (CSO) (Langstone Harbour). Flows up to 983 l/s are lifted by two dry weather flow pumps (with one shared standby pumps) to the inlet distribution chamber where it is joined by sewage from the terminal pumping stations and works return flow from the works drainage pumping station. Combined sewage flow then passes through three 6 mm, 2D escalator screens, each rated at 1,300 l/s operating as duty, assist and standby units, followed by two detritors (two smaller detritors are also on site but are not operated at the present). The inlet screens are served by two duty, standby screening handling units.

Screened and de-gritted sewage up to permitted Flow to Full Treatment value (FFT), 983 l/s, gravitates to the Primary Settlement Tank (PST) distribution chamber. The combined flow then settles in eight circular primary settlement tanks which are covered for odour control. The primary tanks are auto-desludged by eight No. PC pumps, each serving a PST. Settled sewage gravitates to the Combined Lift Pumping Station (CLPS).

The site receives cess import and tankered wastes. Cess and tankered wastes are screened at the cess reception facility and stored in a cess balance tank before being pumped by two screened cess feed pumps to the distribution chamber for the Spiral Separators according to design. At present, both cess and tankered wasted are pumped to PS3. This means cess could enter the storm tanks if FFT is reached. Tankered wastes are not received during storms.

At the CLPS, sewage from Havant is mixed with Return Activated Sludge (RAS) and lifted by four combined lift pumps, each rated at 1,027 l/s, operating as three duty and one standby unit. The flow then mixes with sewage from Eastney and distributed to the BNR activated sludge plant with a total of twelve diffused air aeration lanes with anoxic zones and internal recirculation. The Biological Nutrient Removal (BNR) plant spilt to ASP1&2 and ASP3.

40% of the mixed liquor flow to ASP1&2. ASP1&2 each consists of a primary anoxic / swing zone, followed by three parallel aerobic zones, followed by a shared second anoxic zone and a shared re-aeration zone. Six internal recycle pumps lift mixed liquor from the end of parallel aerobic zones to the head or the primary anoxic zones.

60% of the mixed liquor gravitates to the ASP3 feed pumping station, where the flow is lifted by four ASP3 feed pumps, each rated at 776 l/s. The flow is combined with internal recycled flows lifted by four internal recycle pumps, each rated at 630 l/s, from the ASP3 internal recycle pumping station before entering the common primary anoxic / swing zones of ASP3. This is followed by three parallel aerobic zones, and then followed by a shared second anoxic zone and a shared re-aeration zone.

GEO waste (methanol replacement) is dosed by two methanol dosing pumps into the CLPS to provide additional carbon source for the primary anoxic zone for denitrification. Methanol is dosed to the secondary anoxic zones of ASP1 and ASP3 by four duty, standby dosing pumps. There are a total of eight duty/standby dosing pumps for methanol and GEO waste dosing. There is no methanol dosing into the secondary anoxic zones of ASP2 now, but two pumps are available to do so in future.

Mixed liquors from all ASPs are settled in ten radial final tanks (four for flows from ASP1&2, and six for flows from ASP3). RAS is removed from each final tanks by desludge valves controlled by individual flow meters to the combined desludge chambers (FST1-4, FST5-8, FST9-10) and SAS pumping station. SAS is removed by three SAS pumps to two SAS Buffer Tanks. RAS gravitates to CLPS where it mixes with settled sewage from Havant. Settled final effluent combines and gravitates to final effluent chamber and then to Eastney WPS via a final effluent tunnel. The final effluent, up to 2,362 l/s, is pumped out to sea by six final effluent pumps via a 3.5km long sea outfall (The Solent).

3.2 Sludge treatment centre

The site serves as a major sludge treatment centre which receives imported liquid sludge and cake. It is the largest STC operated by Southern Water.

Budds Farm STC is the largest STC operated by Southern Water and currently treats indigenous sludge from Havant and Eastney Wastewater Pumping Stations (WPS), as well as accepting imported liquid sludge and sludge cake.

Imported raw sludge cake is discharged into the raw cake reception point and then blended with surplus activated sludge (SAS) from the 2 No. SAS tanks (979m^3 each) before being pumped to the 2 No. thickened sludge storage tanks (866m^3 each).

The fraction of SAS not blended with imported raw cake is thickened by 5 No. drum thickeners before being stored in the 2 No. thickened sludge storage tanks (866m^3 each).

Imported liquid sludge is received in 1 No. sludge reception tank (142m^3). Indigenous sludge is transferred to 2 No. sludge holding tanks (156m^3 each). It then joins the imported liquid sludge as it is pumped through 2 No. strain presses and stored in 2 No. screened sludge storage tanks (135m^3 each). From here it is passed through 2 No drum thickeners before being stored in the 2 No. thickened sludge storage tanks (866m^3 each).

Thickened sludge is fed to 5 No. anaerobic digesters (2750m^3 each) operating between 33 to 38ºC. The temperature is automatically maintained by heat exchangers. All tanks capable of producing biogas are sealed and connected to the biogas system.

Digested sludge is transferred to 2 No. post digestion storage tanks (866m^3 each) before being dewatered by 3 No. centrifuges. Lime is injected to digested sludge during dewatering which enables digested sludge cake to be disposed to farmland directly from 1 No. cake storage silo (220m^3).

Biogas produced from these tanks are stored within 1 No. biogas holder (2100m^3) before being combusted at high temperatures within 2 No. CHPs (1 No. 5.04MWth and 1 No. 2.59MWth) or 3 No. dual fuel boilers (2.81MWth each) where it is used to generate heat (i.e. to control the temperature of the digestion process) and electricity for the Site. Excess gas is burned in the 1 No. flare stack.

SAS and raw sludge thickener filtrate, centrate from the dewatering centrifuges and biogas condensates all gravitates to the liquor sump. The sludge liquor is then routed to the Havant PST flow distribution chamber.

There is an odour control unit on the Site which connects to the main sludge treatment building, containing the sludge cake reception and primary sludge treatment processes. This unit contains a wet chemical scrubber system and has the capacity to treat 48,997 m^3/hour of foul air. After treatment, air is released to the atmosphere. A dry vapour system is used around the cake silo to mask odours during unloading.

A Cobra Odourmaster Mobile unit is retained on-site for emergency or unexpected odour and/or dust, this unit sprays a fine mist which suppresses odour and dust.

Two CHP units on-site were installed in 2008 and 2017 with thermal rated inputs of 5.04 MWth and 2.59MWth respectively, both fuelled by biogas. Therefore, the Site falls within the scope of the Medium Combustion Plant Directive (MCPD) since the thermal rated input is greater than 1MWth. The CHP units will not be required to meet MCPD requirements until 2025 and 2030 respectively because they are existing medium combustion plant (MCP).

All tanks and key equipment are covered or enclosed (predominantly within the main sludge treatment building) and connected to either the biogas system or OCU.

Odour from the main sludge treatment building, containing the sludge cake reception and all primary sludge treatment processes is controlled via 1 No. Odour Control Unit (OCU), a chemical scrubber system with total flow rate of 53,100 m^3/hour (there is no carbon filter). Treated odour streams are discharged into the environment through OCU stack and are monitored hourly to ensure the absence of odorous compounds.

A Cobra Odourmaster Mobile unit is retained on site for emergency or unexpected odour and/or dust emissions, this unit sprays a fine mist which suppresses odour and dust.

Treated air is dispersed via a 14m stack to the atmosphere, process parameters including pH, chlorine concentration, redox value and chemical tank levels are continuously monitored and trended on the Supervisory Control and Data Acquisition (SCADA) system.

Acceptance of liquid sludge waste (digestate) at post digestion, for dewatering.

Post digested liquid sludge (digestate) from other Southern Water sites enters at the post digestion tanks, for dewatering at the centrifuges. The process aligns with the process description of the anaerobic digestion from the post digestion tanks onwards. The activity is a contingency measure, whereby there is limited capacity at other sites to dewater digestate, for example process shutdown.

Acceptance of waste to the head of the works

Southern Water wishes to remain able to accept waste to the head of the works. This is currently carried out under permit AP3392HG. The tankered liquid waste is discharged to the dedicated reception facilities, before joining the incoming, indigenous flows, from the sewer network, into the head of works to be treated through the WtW. The total annual tonnage to be accepted will remain at 339,202 wet tonnes.

4 Part A – About you

4.1 Question 5c: details of directors

The details of directors at Southern Water Services Limited (Company number: 02366670) are provided in stand-alone document 790101_MSD_Directors_BUD February 2024.

4.2 Question 7: Contact details

Whereby the contact disclosed in 7a (Anita Manns, Mott MacDonald) is not available the Environment Agency should contact one of the secondary contacts:

Name: Claire Cowdrey

Address: Mott Macdonald, Mountbatten House, Grosvenor Square, Southampton, S015 2JU

Phone number: 023 8062 8523

Email: claire.cowdrey@mottmac.com

5 Part C2 – General – Varying a new bespoke permit

5.1 Question 2: Table 1: Changes to existing activities

The variation application is to vary permit EPR/AP3392HG. The variation application is to:

- add the scheduled activity S5.4 for anaerobic digestion.
- consolidate EPR/ZP3235XJ.
- apply for the waste opartion activity for the acceptance of digested liquid sludge (digestate) for dewatering.
- update the EWC codes.

5.2 Question 3a: Relevant offences

Details of the relevant convictions are provided in the document reference 790101_MSD_RelevantOffences_BUD December 2023 (produced by Southern Water).

5.3 Question 3b: Technical ability

Operational management is provided by qualified individuals and considered to be technically competent. All staff on-site are trained to manage and operate activities without causing pollution.

The Site has two Certificate of Technical Competence (CoTC) holders: [redacted]

[redacted] do not provide technical competence for any other Southern Water sites.

Future competency, in terms of the requirements of the environmental permit, will be ensured through the appropriate training of all staff, covering:

- Awareness of the regulatory implications of the Permit for the permitted activity and their own work activities
- Awareness of all potential environmental effects from operation under normal and abnormal circumstances
- Awareness of the need to report any deviation from the Permit
- Prevention of accidental emissions, and action to be taken when accidental emissions occur

All staff are aware of the implications of activities undertaken including the operation of the Site. Skills and competencies necessary to work on-site are documented and records of training needs and training received for these posts are maintained.

Southern Water is currently working on an accredited Competency Management System under the Competent Operator Scheme based on the Anglian Water Services-developed technical competency course to demonstrate that personnel have the appropriate technical skills and knowledge to manage the activities undertaken. This will be independently certificated and audited, through a third-party certification body (yet to be determined) to ensure it meets the requirements of the Competence Management System Standard, developed by Energy & Utility

Skills[1]. The Competence Management System (CMS) enables Operators to demonstrate technically competent management on the basis of corporate competence and employees' individual competence. Individual competence remains a key component with each employee having the relevant technical competences required to carry out their role.

An e-learning course is being developed and certification is due to be undertaken by LRQA see document 790101_MSD_CMS December 2023). The CMS is to be certified within the first 12 months from issue of a permit for the STC.

5.4 Question 3c: Finances

No relevant persons within Southern Water have current or past bankruptcy or insolvency proceedings against them.

5.5 Question 3d: Management System

The Site operates under the company-wide Environmental Management System (EMS 684981), which is certified to ISO 14001:2015 and is applicable to water supply and wastewater treatment assets at operational sites (wastewater treatment works, water supply works and water booster stations). The EMS is effective for three years from 28 July 2023 until July 2026. The EMS is accredited by the British Standards Institution (BSI).

Demonstrable procedures are outlined in the Site Process Activity Manual (SPAM) and Operating Plan. Any monitoring of emissions to air, land and water is undertaken according to Monitoring Certification Scheme (MCERTS) Standards where the permit requires it, where suitable and available.

As a part of the EMS the Operator has an internal audit programme that takes places every 12 months. During this annual programme operational sites are selected as a subsample and audited. Suppliers and business areas area also audited. An annual report is produced as part of the management review, and this is signed off by Senior Management. In addition, the EMS is subject to audit by the inspection and certification company BSI (for accreditation purposes) each year, and a full certification audit is conducted every three years.

The EMS addresses the following to ensure staff understand their roles and responsibilities to comply with environmental legislation and protect the environment and human health:

- Resources, roles, responsibility and authority
- Legal and other requirements in protecting the environment and human health
- Competence, training and awareness requirements
- Explanation of the Non-conformance, Corrective and Preventative Action Procedures
- Details of the significance of Environmental Aspects and Impacts
- EMS Review and auditing procedure and requirements
- Monitoring and measurement requirements
- Record keeping procedures

To accompany the Permit the Site will have its own Management System in line with the Environment Agency guidance. This identifies all the applicable procedures under the accredited EMS but includes additional site-specific information and procedures.

One of the key tasks for Southern Water during the permit determination process is the development of the management system arrangements to cover additional requirements in

[1] Energy and Utility Skills (2022) Competence Management System. Available online at: https://www.euskills.co.uk/about/our-industries/waste-management/competence-management-system/

relation to the permitted operations. This may include the Climate Change Risk Assessment (CCRA) document reference 790101_ERA_CCRA_BUD to address measures to adapt to predicted additional pressure from changes in external operational conditions (such as weather and flooding), if required. Climate change and climate resilience will be included in the ongoing future updates to the EMS.

In addition to the environmental elements of the management system, Southern Water also has a health and safety management system which includes relevant procedures to follow with regards to accidents and the reporting of incidents and near misses. The health and safety manual is designed to comply with the Health and Safety Executive's (HSE) Managing for health and safety guide (HSG65)[2].

The EMS certification can be found in Document reference 790101_MSD_EMS December 2023.

5.5.1 Accident Management Plan

The Site operates under an Incident Management Plan (IMP) which is incorporated into Southern Water's Environmental Management System to prevent and manage environmental related accidents.

The AMP includes an inventory of substances stored at the site, details on storage facilities, inventory of pollution prevention equipment (spill kits and fire extinguishers), inventory of waste and storage capacities, contact details of internal contacts (Site manager, Environmental Governance Manager and key HSE staff), national and regional (where appropriate) contact details of emergency services and environmental regulators. The IMP is distributed to key staff, to supervise the implementation of the Plan, and shared with external contacts (emergency services and the Environment Agency). The IMP is accompanied by a site plan that identifies the locations of designated storage areas (and their maximum storage capacity), location of spill kits and fire extinguisher and storage locations and hazards posed by chemical substances.

The AMP references procedures to comply with environmental legislation and protect the environment and human health in regard to potential accidents:

- Spill prevention and management, and operation of safety valves
- Procedure for recovering spilled product
- Procedures for the prevention of overfilling vessels, management of plant and equipment failures
- Fire prevention and responses to fires, including fire water containment procedures
- Security measures to prevent unauthorised access, arson and vandalism
- Competence, training and awareness requirements
- Monitoring and measurement requirements
- Record keeping procedures for the recording of incidents, accidents and near misses
- Emergency procedures to notify relevant authorities, emergency services and neighbours

There are several different document types referenced in the AMP. These have been listed below:

- EMS – Environmental Management System
- FEC – Field Event Co-ordinator's Manual
- IMP – Incident Management Plan

[2] Health and Safety Executive (2013), Managing for health and safety (HSG65). Available online at: https://www.hse.gov.uk/pubns/books/hsg65.htm.

- BCP – Business Continuity Plan
- CCM – Control Centre Manual
- SIB – Safety Instruction Book
- CAT – Catastrophe Plans

Table 5.1 below provides a list along with a brief description of each of the procedures which form part of the IMP.

Table 5.1: Incident Management Plan procedures

SUPPORTING EMERGENCY PROCEDURES – IMP	
Procedure Reference	**Brief summary**
EMS 234 Chemical and Oil Storage	Specifies the standard for storage of chemicals and oils. Outlines the amounts of substances that can be stored on site without consent from the Local Authority, and details how these substances should be safely stored. Also includes Information on the auditing, training requirements and any associated documents.
EMS 260 Pollution Prevention (standard)	Specifies the standard for managing and reducing the risk of land contamination. Outlines the tasks a manager should complete i.e., ensuring spill kits are available, and who to contact in the event of an incident. The document also lists the measures that Southern Water should take to prevent pollution incidents. Also includes Information on the auditing, training requirements and any associated documents.
EMS 265 Discharges (Standard)	Sets the minimum standard of operation in managing effluent and potable water process discharges. Details definitions which relate to the procedure and outlines the standard. Also includes Information on the auditing, training requirements and any associated documents.
EMS 360 Pollution Prevention Procedure	Outlines the responsibilities of staff in relation to the procedure. The Procedure includes details on items such as site drainage, working on or near watercourses and excavations. As well as addressing different spill types; chemical, oil and sludge/sewage. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 361 Chemical Risk Assessment (Procedure)	Defines the procedure for assessing the environmental risk from bulk chemicals. Outlines the procedure for undertaking a risk assessment, and where required which EMS procedures need to be followed. Also addresses risk mitigation and employee awareness as well as the auditing, training requirements, reporting forms and any associated documents.
EMS 362 Environmental Fire Risk Assessment Procedure	Specifies the procedure for minimising the environmental consequence of a fire. Outlines the responsibilities of staff in relation to the procedure and provides a procedure for an Environmental Fire Risk Assessment. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 363 Procedure for Managing oil spills on sites	Outlines the responsibilities of staff in relation to the procedure. The procedure details how to determine the severity of the spill for different scenarios; land, inland waters and coastal waters/beaches, and how to prevent, control and remediate the environmental damage caused by spillages from the site. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 364 Lime Spill Management Procedure	Outlines the procedure for managing lime chemical spills at STCs. Defines the responsibilities of staff, and the procedure for managing the spill including the spill assessment and notification and escalation. Information on the auditing, training requirements, reporting forms and any associated documents.

SUPPORTING EMERGENCY PROCEDURES – IMP

EMS 365 Discharges Procedure	Defines the procedure that must be adopted when managing intermittent discharges. Outlines the responsibilities of staff in relation to the procedure and outlines the procedure where an emergency discharge is foreseeable for both emergency and stormwater and potable water. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 381 Operational Waste Procedures	Specifies the procedure for managing wastes. The procedure addresses the definitions of different waste types and outlines a general procedure for managing waste. Identifies where further procedures should also be followed for specific waste types e.g., asbestos, WEEE and waste oils. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 382 Hazardous Waste Procedures	Specifies the procedure for moving hazardous waste between different sites. The procedure addresses identifying hazardous waste, storage of hazardous waste, consignment notes and record keeping. Information on the auditing, training requirements, reporting forms and any associated documents.
EMS 461 Chemical Risk Assessment (Form)	A template for a chemical risk assessment including the following: • Site details • Chemical details • Chemical classification • Risk activity • Risks for health, fire/dsear and environment • Handling, usage and storage requirements • Management of spills • Disposal • Safety data sheet.
EMS 480 Waste Descriptions	Provides written descriptions of different waste types covering the following: • Process giving rise to the waste, • Waste characteristics, • Handling advice, • Containment • Disposal. • Name of waste • Waste classification • Producer and registered office details • EWC • Controlled Waste Regulations 2012 description • Waste type • Form • Temperature; and • SIC code. Information on the auditing, training requirements, reporting forms and any associated documents.
FEC 307 Reporting of Unauthorised Access, Including Loss, Theft and Vandalism	Outlines the responsibilities of staff in relations to the reporting these incidents, and the procedure to be followed. Also includes Information on the auditing, training requirements and any associated documents.
FEC 320 Process Related Incidents	Specifies the procedures to follow in responding to process-related pollution incidents. Responsibilities of staff are outlined in the procedure, as well as contacting

SUPPORTING EMERGENCY PROCEDURES – IMP

	the FEC, FEC actions and reporting procedures. Information on the auditing, training requirements, reporting forms and any associated documents.
FEC 322 – Spillage Procedure	Outlines the responsibilities of staff in relation to the procedure. The procedure outlines the process for handling spillages on site including: • Spillage assessment • Notifications and Escalation • Containment • Awareness and Training Information on the auditing, training requirements, reporting forms and any associated documents.
IMPO_101 – Overview of the Incident Management Plan	This document sets out the overall structure of the Incident Management Plans and provides a short overview of each of the main plans.
IMP 217 and IMP 218 Team Roles – Objectives and Responsibilities	Sets out the Objectives and Responsibilities for roles within the Incident Management Team and provides guidance for the ELT Representative. IMP 217 identifies when Southern Water should contact the Environment Agency, and IMP 218 identifies the process for contacting other authorities.
BCP 415 Guidance on Reporting Potential Media Interest	Sets out the types of incidents to be reported back by Field Operations Staff & Contract staff working on behalf of Southern Water that will potentially attract media interest, including contact numbers.
CCM 302 Procedure Following the Receipt of a Fire Alarm	Provides a consistent regional approach to dealing with any formal notification of a fire alarm within the Company. Outlines the responsibilities of staff, the procedure for when a fire alarm notification is received, inspections/audits, training and any associated documents.
SIB 603 Risk Assessment and Safety Instructions for Fire Awareness	Covers the following: • Training needs of staff and fire wardens • What Managers must provide (i.e. fire safety meetings, plans) • Inspections • Safety instructions for occupied sites, unoccupied sites, and company vehicles • Firefighting procedure • Records to be completed
CAT 303 Actions Following Severe Weather or Flood Warnings	Outlines the plan of actions that should be undertaken following severe weather or floor warnings and the responsibilities of the staff under these circumstances. The procedure details checklists for the following scenarios: impending severe weather, flood watch, flood warning, severe flood warning, and an all clear checklist. Also includes Information on the auditing, training requirements and any associated documents.
Environmental Emergencies Poster (EMS)	A poster which should be displayed on all sites. The poster lists the type of emergency (fires, spills etc) and both the action which should be undertaken the contact phone number which should be called. The poster also highlights a list of things which should be checked prior to work starting such as the H&S notice boards, environmental notice boards and continuity plans.
Pollution 30 Minute Plan	Outlines a five-step plan for responding to a pollution incident in 30 minutes and outlines what should be done at each of the five stages.
Site Chemical Risk Register	Southern Water electronic database containing an inventory of hazardous substances used and stored by Southern Water and those relevant to individual sites,

SUPPORTING EMERGENCY PROCEDURES – IMP	
	helping Southern Water to control substance use and comply with the COSHH regulations.
Alternative Response Coordinators Booklet	These documents provide flowcharts and a step-by-step guide for completing the Alternative Response tasks. Section 5: Resilience Guidance identifies criteria on when to contact local authorities and other first responders.

The EMS can be found in document reference 790101_MSD_EMS December 2023.

The Accident Management Plan can be found in document reference 790101_MSD_AMP_BUD February 2024.

5.6 Question 5a: Site layout plan and process diagram

Plans provided, to satisfy question 5a, can be found in the following stand-alone documents:

- Site Layout and Location Plan – Document reference 790101_MSD_SiteLayoutPlan_BUD January 2025
- Drainage Plan – Document reference 790101_MSD_DrainagePlan_BUD
- Schematics – Document reference 790101_MSD_Schematics_BUD January 2025

5.7 Question 5b: Site condition report

In accordance with Environment Agency requirements, a Site Condition Report (SCR) has been produced to demonstrate the condition of the land and groundwater at the Site on issue of the proposed permit. The SCR included the following details (section 1 to 4 of the Environment Agency template[3]).

- Site details
- Condition of the land at permit issue
- Permitted activities and
- Changes to the activity

A copy of the SCR can be found as document reference 790101_MSD_SCR_BUD January 2025.

5.8 Question 6: Environmental risk assessment

As part of the application for an environmental permit, operators must assess the risk to the environment and human health from the activities that they propose to undertake. This uses the methodology outlined in the Environment Agency's 'Risk assessments for your environmental permit'[4].

The Environmental Risk Assessment (ERA) sets the requirements for the management of the permitted area, emission control measures etc. It assesses the risks to the environment, amenity and human health. All control measures within the rules must be adhered to in order to obtain the permit.

The ERA assesses the impacts from the following environmental concerns:

- Point source and fugitive emissions to air

[3] Environment Agency (2013). Environmental permitting: H5 Site condition report. Available online at: https://www.gov.uk/government/publications/environmental-permitting-h5-site-condition-report

[4] Environment Agency (2023) Risk assessments for your environmental permit. Available online at: https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit

- Point source and fugitive emissions to water and land
- Noise and vibration
- Odour
- Litter, mud and debris
- Vermin and insects (pests)
- Human health and environment safety (i.e. visual impacts, site security, flood risk)
- Natural habitats and ecology

Where emissions result in insignificant effects these have been screened out and where further detailed assessments of potential environmental impacts are required this is noted.

A copy of the ERA can be found as document reference 790101_ERA_BUD January 2025. Constraints maps have been updated to demonstrate human receptors to a radius of 2km, as shown in document reference 790101_ERA_Maps_BUD January 2025.

6 Part C3 – Variation to a bespoke installation permit

6.1 Question 1: Table 1a: Activities applied for

Table 6.1: Question 1, Table 1a: Activities applied for

Installation name	Schedule 1 or other references	Description of the Activity	Activity capacity	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity	Non-hazardous waste treatment capacity
Budds Farm STC	S5.4, Part A (1), (b) and (i)	Anaerobic digestion	Annual: 1,126,898 wet tonnes Daily: 3087.39 wet tonnes	Recovery or a mix of recovery and disposal of non-hazardous waste with a biological treatment capacity exceeding 100 tonnes per day if the only waste treatment is anaerobic digestions. R3 – Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes) R13 – Storage of waste pending any of the operations numbered R 1 to R 12.	0	Annual: Annual: 1,126,898 wet tonnes Daily: 3087.39 wet tonnes
Directly associated activities						
	Physical treatment of waste	Recycling/ reclamation of organic substances which are not used as solvents		R3		
	Waste reception	Import of liquid sludge and cake		R3 D9		
	Use of biogas	Use principally as a fuel or other means to generate energy		R1		
	Use of flare	Incineration on land		D10		
	Standby boiler	Used for emergency only		R1		
	Use of pressure	Used for emergency				

Installation name	Schedule 1 or other references	Description of the Activity	Activity capacity	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity	Non-hazardous waste treatment capacity
	release values	only, do not export electricity to the grid.				
	Storage	Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced).		R13		
	Raw material storage	Storage of raw materials including chemicals, lubrication oil, antifreeze, diesel, activated carbon		R05		
	Liming	Used to stabilise sludge		R05		
	Discharge of condensate	Condensate from the CHP exhaust, flare gas pipelines, gas storage bag from collection to the point of discharge at the adjacent WTW.				
For installations that take waste	Total storage capacity	21475m^3				
	Annual throughput	950,677 wet tonnes into site 840,003 wet tonnes for indigenous 110,674 wet tonnes for imports 176,221 wet tonnes additional capacity 358,544 wet tonnes digester capacity				

Table 6.2: B4 Table 1a: Activities applied for (waste operation activity)

Name of waste operation	Description of the waste operation	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity	Non-hazardous waste treatment capacity
Acceptance of liquid sludge waste (digestate) at post digestion	Physical treatment of waste. Recycling/ reclamation of organic substances which are not used as solvents.	R3	N/A	Daily: <50 tonnes
For all waste operations	Total storage capacity	Acceptance of liquid sludge waste (digestate) at post digestion: N/A, as it is feed though the remaining process after digestion to the centrifuge for dewatering		
	Annual throughput (tonnes each year)	Acceptance of liquid sludge (digestate) at post digestion for dewatering: 1,000 wet tonnes.		

6.1.1 Question 1: Table 1b: Types of waste accepted

Southern Water requires the permit for the Budds Farm STC to be authorised to accept sludge waste to undergo anaerobic digestion to comply with the Industrial Emissions Directive. It is requested that the annual quantity of tankered waste imports to the head of works to be accepted is unchanged from 339,202 tonnes (currently permitted under EPR/AP3392HG. The types of waste accepted are shown in Appendix A. None of the requested wastes are hazardous.

6.2 Question 2: Point of source emissions to air, water and land

6.2.1 Emissions to air

Table 6.3: Part C3, Question 2, Table 2: Point source emissions to air

Installation name	Budds Farm STC			
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity	Unit
Stack 1 - CHP 1 (A01) SU 70661 05528	CHP engine exhaust stack of 5.04MWth spark ignition via 15m stack, fuelled by biogas As per EPR/ZP3235XJ	Oxides of Nitrogen (as NO2)	500	Mg/m^3
		Carbon Monoxide	1400	Mg/m^3
		Sulphur Dioxide	330	Mg/m^3
		Total VOCs	1000	Mg/m^3
Stack 2 - CHP 2 (A02) SU 70640 05530	CHP engine exhaust stack of 2.59 MWth, fuelled biogas As per EPR/ZP3235XJ	Oxides of Nitrogen (as NO2)	500	Mg/m^3
		Carbon Monoxide	1400	Mg/m^3
		Sulphur Dioxide	350	Mg/m^3
		Total VOCs	1000	Mg/m^3
Flare (A03) SU 70620 05529	As per EPR/ZP3235XJ	Oxides of Nitrogen (as NO2)	150	Mg/m^3
		Carbon Monoxide	50	Mg/m^3
		Total VOCs	10	Mg/m^3

Installation name	**Budds Farm STC**			
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity	Unit
Odour Control Unit (A13) SU 70752 05601	Channelled emissions to air as identified on the Site plan.	Ammonia	20	Mg/m^3
		H2S	No limit specified	
		Odour concentration	1000	Que/Nm^3
Boiler 1 (A04) SU 70693 05524	Standby boiler exhaust stack – operating on Biogas or Natural As per EPR/ZP3235XJ	No Parameter set	No limit set	
Boiler 2 (A04) SU 70693 05524	Standby boiler exhaust stack – operating on Biogas or Natural As per EPR/ZP3235XJ	No Parameter set	No limit set	
Boiler 3 (A04) SU 70693 05524	Standby boiler exhaust stack – operating on Biogas or Natural (currently out of operation)	No Parameter set	No limit set	
Gas holder (A05) SU 70648 05507	Gasholder pressure relief valves	Biogas release and operational events	No limit set	
Pressure relief valves Digester 1 (A06) SU 70665 05564	Biogas release and operational events	Biogas release and operational events	No limit set	
Pressure relief valves Digester 2 (A07) SU 70691 05565	Biogas release and operational events	Biogas release and operational events	No limit set	
Pressure relief valves Digester 3 (A08) SU 70665 05547	Biogas release and operational events	Biogas release and operational events	No limit set	
Pressure relief valves Digester 4 (A09) SU 70691 05545	Biogas release and operational events	Biogas release and operational events	No limit set	
Pressure relief valves Digester 5 (A10) SU 70656 05586	Biogas release and operational events	Biogas release and operational events	No limit set	
Pressure relief valves Post digestion storage tank 1 (A11) SU 70648 05563	Biogas release and operational events	Biogas release and operational events	No limit set	
Pressure relief valves Post digestion storage tank 2 (A12) SU 70647 05547	Biogas release and operational events	Biogas release and operational events	No limit set	

The emission points are shown in drawing reference 790101_MSD_SiteLayoutPlan_BUD January 2025.

6.2.2 Emissions to water (other than sewers)

The drainage network sends water to the head of the works for treatment.

There will be no point source emissions from the Site and no direct discharge of wastewater to controlled waters from STC.

There are no direct potentially contaminated discharges to groundwaters.

Accidental releases of materials to the environment are controlled through adequate containment measures and working procedures in accordance with the EMS. Spill procedures are in place under EMS363 and 364 as well as pollution prevention procedure EMS360. All spillages are recorded in the site diary including actions taken.

6.2.3 Emissions to sewers, effluent treatment plants or other transfers off-site.

The release of liquors from the sludge treatment process is considered to be either point source emissions or direct discharges to controlled waters or public sewers, as part of the permit operation. The site layout plan, drawing reference 790101_MSD_SiteLayoutPlan_BUD January 2025, identifies the point at which liquors leave the site to enter the WTW at the inlet. A sampling location has also been identified on the site layout plan, although sampling will be undertaken as part of a wider implementation plan under BAT and IED. An implementation plan is shown in document reference 790101_MSD_ImplementationPlan December 2023. It is, therefore, considered that this will be added as Improvement Conditions to the permit.

Any liquid waste will either be reused or discharged to the drainage system of the adjacent Budds Farm WTW and will undergo treatment through the works before being discharged under the existing water discharge permit. On-site WTW effluent will meet the requirements of the existing water discharge activity permit. The water used at the Site will be contained in a closed circuit; all wastewater streams will either be recycled within the process or captured and rerouted to the adjacent WTW.

On-site WTW effluent will meet the requirements of the existing discharge consent. The water used at the Site will be contained in a closed circuit; all wastewater streams will either be recycled within the process of captured and rerouted to the adjacent WTW.

Discharges will be minimal, typically arising from periodic maintenance/cleaning operations. As such, there are no direct potentially contaminated discharges to controlled surface waters and no significant impacts. All drainage (surface water or foul water) will be captured by the on-site drainage system and returned to the head of the WTW. A drainage plan of the Site is presented in document reference 790101_MSD_DrainagePlan_BUD.

The stormwater drainage of potentially contaminated areas from within the Site boundary will be routed into the sewage treatment process with no discharge outside of the Site. There will therefore be no risk of polluted runoff affecting off-site features due to the creation of a new hardstanding area.

Due to the anticipated very low levels of contamination of the water and the volumes involved, no monitoring of its composition is proposed prior to discharge to the WTW.

Any areas of the Site, where there is a risk of contamination of surface water, groundwater or discharge of process waters are located on impermeable concrete surface. All surface water from these areas drain to the WTW internal drainage system and are returned to the head of the works for treatment prior to discharge as final effluent.

A list of the point source emissions to sewers, effluent treatment plants and other transfers off-site is included as Table 6.4.

Table 6.4: Part C3, Question 2, Table 2: Point source emissions to sewers, effluent treatment plants or other transfers off-site

Emission point reference and location	Source	Characteristics	Monitoring/mitigation measures prior to final discharge and emission point discharge
Return to inlet works of Peacehaven WTW	Condensate from the gas pipelines and gas storage bag	Condensate with slightly elevated levels of H2S dissolved from the biogas, resulting in a low level of acidity	Rerouted to adjacent WTW (W1 – Inlet works SU 70793 05667
B4 – Waste activity – acceptance to head of the works			
Imported tankered waste 1 (S5) SU 70774 05648	Tankered trade and domestic waste to HoW	Variable, from catchment	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667). Monitoring point for sampling as M5 on site layout plan (SU 70776 05647)
Imported tankered waste 2 (S6) SU 70905 05503	Tankered trade and domestic waste to HoW	Variable, from catchment	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667). Monitoring point for sampling as M6 on site layout plan (SU 70909 05503)
Imported tankered waste 3 (S7) SU 70735 05463	Tankered trade and domestic waste to HoW	Variable, from catchment	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667). Monitoring point for sampling as M7 on site layout plan (SU 70739 05461)
C3- Schedule activity (anaerobic digestion)			
Surface water run-off as per EPR/ZP3235XJ	Surface water run-off	Clean rainwater from runoff	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667).
Combined liquors (S1) SU 70734 05479	Other process liquors	Variable, from processes	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667). Monitoring point for sampling as M1 on site layout plan (SU 70731 105479)
Gas condensate (S2) SU 70637 05516	Condensate from the gas pipelines and gas storage bag	Condensate with slightly elevated levels of H2S dissolved from the biogas, resulting in a low level of acidity	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667) Monitoring point for sampling as M2 on site layout plan (SU 70640 05516).
Centrifuge liquors (S3) SU 70702 05497	Process liquors from centrifuges	Variable, from processes	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667) Monitoring point for sampling as M3 on site layout plan (SU 70705 05497).
Drum thickener liquors (S4) SU 70738 05516	Process liquors from drum thickeners	Variable, from processes	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667) Monitoring point for sampling as M4 on site layout plan (SU 70741 105516).
Boiler Maintenance	Boiler blow down to minimise damage from high mineral content water.	High purity water with traces of chemicals (used for boiler dosing).	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667).

Drain down of plant	Occurs during maintenance when it is necessary to drain down the feed water, hot well or boiler shell.	High purity water with traces of chemicals (used for boiler dosing).	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667).
Rainwater	Uncontaminated roof water from buildings.	Clean rainwater from building roofs only.	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667).
Rainwater	Run off from impervious surfaces.	Clean rainwater from runoff	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667).
Washwater	From the washing down of mechanical equipment during maintenance activities.	Variable	Discharged to adjacent WTW (W1 – Inlet works SU 70793 05667).

Please refer to the ERA (document reference 790101_ERA_BUD January 2025) on the environmental risk the water emissions pose and how these are mitigated, where relevant.

6.2.3.1 Incidents of storming

Flows to site are dealt with in two locations. Sewage from the Portsmouth sub-catchment is managed offsite between Henderson Road, Eastney WPS and Fort Cumberland WPS. Sewage from Havant sub-catchment, Penner Road WPS and 'Stock Haying Island WPS' is received to site.

Storm separation occurs upstream of the liquor returns and as such all liquor returns follow the WtW process. Therefore, it is not possible for return liquors to directly discharge into the environment from the installation, without it receiving full treatment in the WtW.

Tankered trade and domestic waste including cess and chemical toilet waste are not received during storm.

Southern Water will provide a wastewater and digestate buffer storage plan (listed in regard to BAT 4 in the Implementation Plan, document reference 790101_MSD_Implementation Plan December 2023). The Plan's purpose is to propose and describe site contingency arrangements to provide appropriate storage capacity or other appropriate measures to prevent or minimise emissions of wastewater or digestate being discharged off site during any occasions when the receiving wastewater treatment works is in storm overflow operating conditions. It is understood the Plan will be required to include, but not be limited to:

- Proposals for additional storage capacity with secondary containment within the site boundary for wastewater and/or other digestate during any occasions when the receiving wastewater treatment works is in storm overflow operating conditions.
- Procedures to cease discharges during these conditions.
- Calculation of a reasonable contingency capacity of wastewater and/or other digestate during any occasions when the receiving wastewater treatment works is in storm overflow operating conditions.
- A description and design specification of the buffer storage infrastructure and secondary containment measures. The design shall be completed by an appropriately qualified engineer and secondary containment shall be designed in line with CIRIA C736.

- A program of works with timescales for the implementation and construction of the buffer storage.
- A preventative maintenance and inspection regime.

6.2.4 Emissions to land

There will be no point source emissions to land as part of the activities carried out on-site.

Indigenous sewer grit and screenings are collected in separate skips and removed off-site by road vehicle and transported to a suitably Permitted facility.

Grit and screenings generated from the tankered waste reception points and collected in separate skips and removed off-site by road vehicle and transported to a suitably permitted facility.

Please refer to the ERA (doc ref 790101_ERA_BUD January 2025) on the environmental risk the water emissions pose and how these are mitigated, where relevant.

6.3 Question 3a: Operating techniques

This section provides a technical overview of the components, the proposed techniques and measures to prevent and reduce waste arising and emissions of substances and heat, including during periods of start-up or shut-down, momentary stoppage and malfunction, and leaks. Specifically, consideration is made of:

- The technology to be used
- The process, in terms of how it will be operated and controlled
- In-process controls and Best Available Techniques (BAT) Assessment
- Measures implemented to control emissions to air, water, sewers and land

Table 6.4 lists the technical guidance notes (TGNs) used to inform the techniques and measures proposed to prevent and reduce waste arising and emissions of substances, including during periods of start-up and shut down, momentary stoppage and malfunction, and leaks.

The technical guidance and BAT requirements will also be addressed within Southern Water's Budds Farm Working Plan, as part of the EMS, to be made available to staff to ensure compliance with a permit, which covers the following:

- Management of activities, including security and staffing
- Emissions and monitoring, including:
  - Point sources to air, water and land
  - Fugitive emissions
  - Site drainage
  - Storage of waste
  - Odour, noise and vibration
  - Site record keeping

Table 6.5: Part C3, Question 3a, Table 3: Technical standards

Installation name	Budds Farm STC	
C3 – Installation		
Description of the schedule 1 activity or directly associated activity	**Best available technique (BATC, BREF or TGN reference)**	**Document reference**

Installation name	Budds Farm STC	
Section 5.4 non-hazardous waste installation - anaerobic digestion installation regulated under the Industrial Emissions Directive, utilisation biogas for energy	• Biological waste treatment: appropriate measures for permitted facilities • Non-hazardous and inert waste: appropriate measures for permitted facilities	• https://www.gov.uk/guidance/biological-waste-treatment-appropriate-measures-for-permitted-facilities/1-when-appropriate-measures-apply • https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities
B4 – Waste activities		
Description of the waste operation	**Appropriate measure (TGN reference)**	**Document reference**
Acceptance of liquid sludge waste (digestate) at post digestion, for dewatering	• Non-hazardous and inert waste: appropriate measures for permitted facilities • Biological waste treatment: appropriate measures for permitted facilities	• https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities • https://www.gov.uk/guidance/biological-waste-treatment-appropriate-measures-for-permitted-facilities/1-when-appropriate-measures-apply
General		
All activities	**Guidance**	**Document reference**
	• Monitoring stack emissions: technical guidance for selecting a monitoring approach • M1 sampling requirements for stack emission monitoring • Environment Agency environmental permitting guidance, including: • Risk assessments for your environmental permit • Energy efficiency (Energy efficiency for combustion and energy from waste power plants) • Noise assessment and control • H4 Odour management • H5 Site condition report • Control and monitor emissions for your environmental permit	• https://www.gov.uk/guidance/monitoring-stack-emissions-technical-guidance-for-selecting-a-monitoring-approach • https://www.gov.uk/government/publications/m1-sampling-requirements-for-stack-emission-monitoring • https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit • https://www.gov.uk/guidance/energy-efficiency-standards-for-industrial-plants-to-get-environmental-permits • https://www.gov.uk/government/publications/noise-and-vibration-management-environmental-permits • https://www.gov.uk/government/publications/environmental-permitting-h4-odour-management • https://www.gov.uk/government/publications/environmental-permitting-h5-site-condition-report • https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit

A copy of the schematics describing the operation and process can be found in document reference 790101_MSD_Schematics_BUD January 2025.

6.3.1 BAT Assessment

An assessment against the BAT Conclusions set out in the 2014/738/EU: Commission Implementing Decision of 9 October 2014 establishing best available techniques (BAT) conclusions, under the Industrial Emissions Directive 2010/75/EU has been undertaken for all the 16 sites, as a whole, and the outcome of these conclusions can be found in document reference 790101_MSD_BAT_BUD January 2025. This document reflects the existing arrangement at site and any commitments Southern Water has already made during the ongoing application process. It is acknowledged that it does not fully meet BAT in some instances. Changes to site will be undertaken and completed to meet BAT, where applicable. The changes required will be submitted to the Environment Agency, in plans to be submitted as

part of Improvement Conditions within the permit, for their agreement and Southern Water's subsequent implementation. An implementation plan has shown in document reference 790101_MSD_ImplementationPlan December 2023.

Included in the Implementation Plan is for the wastewater inventory monitoring to be undertaken as per BAT 2, and further information is addressed in Section 6.2.3. On-going monitoring is proposed to be in line with BAT AELs and monitoring frequencies are applicable to treatment of water-based liquid waste and biological treatment of waste, these are outlined in Table 6.1 and Table 6.2 of the BAT assessment.

The Odour Management Plan (document reference 790101_ERA_OdourMP_BUD January 2025) has also been prepared in accordance with the following BAT conclusions, in additional to the H4 guidance:

Supplementary documents for the BAT assessment are provided:

- BAT 1, 21 and 38: Accident Management Plan (AMP) is provided in 790101_MSD_AMP_BUD February 2024. Catastrophic failures, of tanks for example, will be included in the AMP once final designs are agreed based on the findings in CIRA/ABDA assessment.
- BAT 1, 11, 22 and 35: Residues Management Plan (RMP) is provided in 790101_MSD_ResidueMP_BUD January 2025.
- BAT 1, 8, 10, 12, 13, 14, 33, 34 and 52: Odour Management Plan (OMP) is provided in 790101_ERA_OdourMP_BUD January 2025.
- BAT 1: Environmental Management System is provided in 790101_EMS Certificate December 2023.
- BAT 2 and 52: Description of the waste acceptance and pre-acceptance procedures provided in 790101_WasteAcceptance_BUD January 2025.
- BAT 3, 6, 7 and 20: Sampling commitment and proposal for characterisation is provided in 790101_Sampling proposal_BUD January 2025.
- BAT 14: Leak Detection and Repair Plans (LDAR) are provided in 790101_MSD_LDAR_BUD February 2024.
- BAT 14: Bio-aerosols Risk Assessment (BRA) is provided in 790101_ERA_BioRA_ BUD February 2024.
- BAT 17: Environmental Risk Assessment (ERA) is provided in 790101_ERA_BUD January 2025
- BAT 19 and 38: ABDA Tool and proposed containment solution is provided in 790101-MMD-IED-BUD-CA-C-001 - ADBA P02 and the site layout plan 790101_MSD_SitelayoutPlan_BUD January 2025.
- BAT 19: Covering of tanks is provided in the Implementation Plan, 790101_MSD_Implementation Plan December 2023.
- BAT 19: Drainage is provided in 790101_ERA_Drainage Plan_BUD.
- BAT 23: Energy Efficiency is provided in 790101_MSD_Main_BUD January 2025
- BAT 34: Reducing channelled emissions, addressed in the Odour Management Plan (OMP), provided in 790101_ERA_OdourMP_BUD January 2025.
- BAT 53: Reducing emission of hydrochloric acid (HCl), ammonia (NH_3) and organic compounds to air addressed in the Odour Management Plan (OMP), provided in 790101_ERA_OdourMP_BUD January 2025.

6.3.2 Appropriate measures assessment

In addition to the Bref and associated BATc, the appropriate measures will form part of the technical standards the Site operates:

- Non-hazardous and inert waste: appropriate measures for permitted facilities
- Biological waste treatment: appropriate measures for permitted facilities

As the Site is existing some aspects of the Appropriate Measures do not apply, as the Site was built and operated prior to the issue of the guidance. Southern Water are committed to develop the application of the key principles from the guidance into Site operation and associated management plans as soon as practicable, to ensure the following:

- Reducing or preventing contamination
- Preventing cross contamination by segregation
- Maintaining appropriate primary and secondary containment
- Ensure the Site does not exceed site capacity (design and permitting constraints)
- General management:
  - Operate with a Management System
  - Operate with applicable specific management plans (odour, accident and residue plans)
  - Inspection, maintenance and monitoring regimes
  - Maintaining and reviewing staff competency requirements
  - Maintaining appropriate security measures across the Site
  - Record keeping procedures
  - Contingency plans
- Maintaining appropriate waste storage and suitable segregation, to prevent environmental impacts. Includes tank inspection and maintenance regimes
- Operate and calibrate process monitoring systems
- Record keeping of process outputs, and appropriate handling of residues
- Emissions controls, including prepare an emissions inventory
- Apply process efficiency measures for energy, raw materials, water use and waste minimisation.

As per document reference 790101_Sampling proposal_BUD January 2025, sampling and analysis in relation to permitted waste operations, other than those related to Scheduled Activities, will be undertaken in line with ‘Non-hazardous and inert waste: appropriate measures for permitted facilities’ guidance text, using an MCERTS accredited, or equivalent, laboratory, where available. This commitment is related to the acceptance of imported wastes to the post digestion at the Site.

Acceptance of liquid sludge waste (digestate) at post digestion, for dewatering.

A high-level assessment against the appropriate measures for inert and non-hazardous waste has been undertaken and is presented in document reference 790101_Appropriate Measures_BUD January 2025.

6.4 Question 3b: General requirements

6.4.1 Overview

This section provides an overview of the measures in place at the Site for controlling fugitive emissions, noise and odour. An ERA has been completed and is provided with the

application (Document reference 790101_ERA_BUD January 2025). The response to this question relates to Table 4 in the Part C3 form.

6.4.2 Control of fugitive emissions to air

There are no significant fugitive emissions to air of gases, vapours or particulates as part of normal Site operations.

Details of the procedures Southern Water follows with regards to the control of mud and debris and potentially polluting leaks and spillages are addressed in the EMS.

An Air Quality Risk Assessment has been undertaken at the time of the application for permit EPR/ZP3235XJ to assess the impacts from point sources emissions at the site. As combustion activities are not being changed on site as a result of permitting the AD plant and associated processes, it is not anticipated that an updated Air Dispersion Modelling (ADM) will be required for this permit application.

The existing approaches and relevant procedures presented in the EMS and operational procedures are considered to adequately address the emissions that may present a risk, and, therefore, an Emission Management Plan is not considered be required.

6.4.2.1 CHP and flare

Gas modelling shows the site experiences annual flaring of 448 hours (5.1% of time).

The existing flare will be retained at this site for operation during maintenance or emergency. The CHP is planned for replacement.

Testing of the flare has shown the flare emissions are compliant. Additional work is required to ensure all BAT requirements are met (e.g. access platforms for testing, the required testing is fully adopted into BAU and related processes, ensure all required signals for data collation and reporting are provided, all specific requirements are met for MCERTs and M1 & M2 guidance).

The detail of this is under review and any identified scope will be completed in AMP8.

The flare use data forms part of wider data collation and reporting (IT) system improvements planned to meet BAT 2c for inventory, BAT 11 energy and has an influence on BATs 15b, 16b and 21c for incident reporting (re. PVRVs and gas system management).

Further information is being collated in line with discussions with the SSD LIA (KS) on 3/12/24 and will be provided in due course (regarding asset replacement plans and timescales but will be provided for all sites even though no asset replacements are required here).

6.4.2.2 Odour

The Site is located southwest of the town of Havant, Hampshire. The site is located on an industrial estate and is bordered by Storehouse Lake to the south and west and screened in all directions by trees. The site was built in 1953 and serves a population of 382,570 (RC23) from the two sub-catchments of Portsmouth and Havant.

The receptor closest to a potential emission source is an industrial facility north of the Site, which is located approximately 40m northeast of the TTW reception-site.

The Site has received four odour complaints between 2018 and 2023.

The Site has an Odour Management Plan (OMP), produced in February 2024, which identifies potential odour emissions from site operations and procedures to manage, control and minimise odour impacts. It sets out the procedures for engaging with neighbours and how the Operator will manage complaints, and the actions to be taken in the case of pollution events.

The OMP also describes the monitoring and maintenance procedures to maintain the control measures. The EMS 341 air quality and odour management also sets out the process for responding to odour complaints arising from customer contact.

The OMP was written in accordance with the Environment Agency's H4 Odour Management guidance (2011).

The majority of the Site operations are fully enclosed. All sludge treatment processes are covered or enclosed, with the exception of aeration lanes, FET, storm tanks and storage silos which are open lidded but kept indoors, where a masking spray is used to mask smell. Odour is controlled by two Odour Control Units (OCUs) (one stationary, another mobile unit).

There is a central OCU on the Site which treats extracted odorous air from the main control and process building, the screens, grit and grease removal process, sludge reception area, sludge thickeners, sludge holding tanks and centrifuges.

The OCU is a single stage, dual tower wet chemical scrubber system, and has the capacity to treat 53,100m^3/hour of foul air when both towers are in operation. Foul air enters the towers and passes through a column of plastic media to enable mass transfer of odorous compounds to the liquid phase. A liquid containing chemicals (sodium hypochlorate) is circulated through the column to destroy odorous compounds and turns them into odourless and soluble salts, which are then returned to the wastewater treatment system. Chemical dosing is controlled by a redox and pH system, in order to maintain optimum conditions for the chemical reaction caustic is added to the towers and controlled by pH probes. There are no carbon filters used in combination with the OCU.

A Cobra Odourmaster Mobile unit is retained on-site for emergency or unexpected odour and/or dust problems; this unit sprays a fine mist which suppresses odour and dust. It is used to control odours during maintenance.

Treated air is dispersed via a 14m stack to the atmosphere, process parameters including pH, chlorine concentration, redox value and chemical tank levels are continuously monitored and trended on the SCADA system.

Management of the odour risks at the Site are also addressed in the Budds Farm WTW Odour Management Risk Assessment. The risk assessment provides mitigation measures to be followed by all staff to ensure normal operation does not result in odours leaving the STC boundary. The Odour Management Plan can be found in document reference 790101_ERA_OdourMP_BUD January 2025.

The level of odour risk from the Site Is considered to be low to medium, as shown in Appendix B of the ERA (document reference 790101_ERA_BUD January 2025) and the OMP provides sufficient mitigation.

6.4.2.3 Noise

Initial screening has been carried out for the Site. Since the Site is not undergoing changes to equipment and vehicle movements prior to application submission, a Noise Impact Assessment (NIA) is not considered to be required. Appropriate mitigation for noise and vibration impacts are provided by the ERA.

A Noise and Vibration Management Plan would be required whererby the NIA concludes that noise and vibration requires management, such as monitoring and maintaining abatement measures. Since noise and vibration impacts are considered to be appropriately mitigated in the ERA, a Noise and Vibration Management Plan is also not considered to be required.

There have not been any noise complaints recorded at the Site in the past five years.

6.4.2.4 Dust and particulates

There are not considered to be any significant dust or particulate sources from the Site as identified in the ERA document reference 790101_ERA_BUD January 2025.

6.4.2.5 Bio-aerosols

A bioaerosols risk assessment has been undertaken for the Site and considers there not to be any significant risks. The Bio-aerosol Risk Assessment can be found in 790101_ERA_BioRA_BUD February 2024.

6.4.3 Control of fugitive emissions to surface water, sewer and groundwater

There are not considered to be any fugitive emissions to surface water, sewers or groundwater. There will be no direct discharge of wastewater to controlled waters from the STC.

All drainage water including surface or foul water is captured by the drainage network which returns all water to the head of the works for treatment.

There are no direct potentially contaminated discharges to groundwaters. Condensate from the flare, CHPs and the biogas is captured in condensate pots and is discharged to drainage and directed to the inlet works.

There is appropriate containment for the control of liquid wastes put in place to minimise any potential releases, as identified in the EMS.

Accidental releases of materials to the environment are controlled through adequate containment measures and working procedures.

The existing approaches and relevant procedures presented in the EMS and operational procedures are considered to adequately address the emissions that may present a risk, and therefore, an EMP is not considered to be required.

6.4.4 Control of fugitive emissions to land

Details of waste generated at the Site is demonstrated in document reference 790101_MSD_ResidueMP_BUD January 2025.

6.5 Site security

Activities are managed and operated in accordance with the management system. Access to Site and waste is restricted by palisade fencing approximately 2.8m high, the entrance to the site secured by an automatic gate. The Site is manned 24 hours a day, 7 days a week. For visitors and unauthorised personnel, there is an automatic gate with an intercom system at the Site entrance, a visitor sign-in book is also used at the Site. The Site also benefits from a CCTV system comprising of 20+ cameras, infra-red and motion detectors on gas and oil tanks and number plate recognition.

Regular inspections of the boundary fencing and buildings are undertaken to ensure that these have not been compromised and continue to prevent easy access to Site. Repairs are undertaken in accordance with the EMS requirements.

Other risks relating to human health and the environment are presented in Appendix B of the ERA in document reference 790101_ERA_BUD January 2025.

6.6 Complaints procedure

All complaints received relating to any aspect of the Site and its activities will be recorded and acted upon. Complaints, and actions taken, will be either recorded in the Site Diary or on a

complaints record form. If a Site receives a complaint, this form should be completed and shown to the Environment Agency when they next inspect the Site. The forms will be used as evidence that any complaints received have been taken seriously and that actions have been taken to rectify any problems identified.

Complaints will be investigated promptly and any appropriate remedial action taken. The complainant and anyone else likely to have been affected, should be informed about what has been found and actions taken in a timely manner. The details of the complaint and the actions taken will be recorded in the Site Diary or log.

The aim will be to undertake measures to prevent complaints from being raised. However, where this is not possible, proactive measures will be taken to prevent further complaints from being made. For example, if a complaint is made with respect to dust, the Site Manager will arrange for dust suppression equipment to be used. The Site Manager will assess whether further control measures will be required to ensure that the risk of recurrence is minimised. The details of the complaint will be recorded in the Site Diary and the complaints register. If a complaint is received Southern Water will be informed as soon as is practicable and the complaints procedure will be followed. Confirmation will be recorded in the Site Diary or inspection log. The Site Manager will inform the Environment Agency of the complaint, if appropriate.

Any drivers who regularly cause a dust or mud and debris nuisance as a result of mismanagement of their vehicles will be discussed and advice will be sought from the Site Manager, if relevant.

If a complaint is made with respect to insects the Site Manager will investigate whether any of the activities at the Site could be the source of the nuisance.

If a complaint is made with respect to litter the Site Manager will arrange for litter pickers to clear up as appropriate and will assess whether further control measures will be required to ensure that the risk of recurrence is minimised. The details of the complaint will be recorded in the Site Diary and the complaints register.

Any complaints relating to fugitive emissions and the actions taken will also be recorded in the Site Diary and copies of the incident reports (including those provided to the Environment Agency) retained on-Site.

If a complaint is made with respect to vermin or an infestation is suspected, where normal treatment activities appear to be unsuccessful, the Site Manager will discuss and agree any further measures required with the pest control firm. The complaint reporting procedure will be followed as described below.

If a complaint is made with respect to noise or vibration the Site Manager will assess the cause of the complaint and will report the findings. If the noise or vibration leading to the complaint has been caused by a continuing operation, additional noise or vibration surveys may be required to confirm the degree of impact upon the receptor. The Site Manager will make any recommendations for further noise or vibration control to the Management Team and shall inform the Environment Agency of the complaint as soon as it is practicable to do so.

If a complaint is made with respect to odour, the Site Manager will investigate the source of the odour and take steps to reduce its impact. If the source appears to come from the Site, then appropriate actions to reduce the odour will be taken.

6.6.1 Complaints investigation procedure

In the event of any complaint, this section deals with the complaint assessment procedures. The primary role of this assessment will be to ascertain whether the complaint is associated with any

Site operations and what action should be taken to prevent or minimise the probability of a recurrence.

It is important that any person acting on behalf of Southern Water is appropriately trained and that all steps and decisions are documented.

Step 1 – Complaint received

The Site operator or Environment Agency receives a complaint regarding the STC. Details logged within the Customer Services Management System (CSMS).

Step 2 – How to respond

Complainant is contacted to inform them the complaint has been received and request further information, where required.

The primary reasons for investigation of complaints are to identify the likely cause and source for the complaint and it is important to gather as much information about the complaint as possible. At the outset of any investigation, the Site Manager is to determine the priority for responding to the complaint.

If possible, someone from the Environment Agency will attend after a complaint has been made so that they can carry out an effective and subjective appraisal of the complaints and note any results into the CSMS.

Step 3 – Determine what to record and how

The complaint details and the investigation outcomes and actions taken are to be recorded in the CSMS. This information must be filled in on Site at the time of notification of the complaint.

Step 4 – Follow-up investigation

In order to resolve any problems successfully, it is essential to understand fully the source, reason and the operational conditions that led to the complaint. The first step in the investigation will be to select the most appropriate methodology for assessment. All the information collected should be filled in on the internal complaints form and a note made referencing this in the CSMS.

Step 5 – Communication with the complainant

The Site Manager or contractor tasked with addressing the complaint is responsible for collecting all the information and providing feedback to the complainant, or the Customer Contact Centre will contact the complainant. Wherever possible an explanation of the actions taken and the reasons for the decision should be made to the complainant.

If it is decided that there was no ground for the complaint this should be clearly explained to the complainant, along with information about what they should do if they are unhappy with the response.

Step 6 – Monthly complaints records

A full report of the complaints logged within the CSMS is produced to present to the relevant Technician to allow a review of potential trends.

6.7 Question 3c: Types and amounts of raw materials

Details of raw materials is demonstrated in document reference 790101_MSD_ResidueMP_BUD January 2025.

6.8 Question 4: Monitoring

This section provides a summary of the proposed monitoring at the Site.

6.8.1 Emissions to air

Stack emissions monitoring will be undertaken for each stack in accordance with M5 monitoring guidance, MCERTs BS EN 14792 and the requirements of the environmental permit issued for the Site, where suitable and available.

Periodic monitoring will be undertaken on an annual basis as part of the routine maintenance programme. No abatement technology is required, and continuous monitoring is not considered necessary. Sample monitoring will be carried out after each maintenance period on the CHP and boilers, in order to ensure compliance with ELVs as required in the Environmental Permit.

Once permitted monitoring will be undertaken in accordance with the relevant standards. It is anticipated the monitoring standards required are as follows:

Table 6.6: Monitoring of air emissions

Emission point type	Parameter	Reference period	Monitoring frequency	Monitoring standard or method
Stacks on engines Burning biogas	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	periodic over minimum 1-hour period	Annual	In accordance with TGN M5 – Monitoring of stack emissions to air
	Carbon monoxide			
	Sulphur dioxide			
	Total volatile organic compounds including methane			
Boilers (dual fuel)	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	periodic over minimum 1-hour period	Annual	In accordance with TGN M5 – Monitoring of stack emissions to air
Channelled emissions to air (biofilter and scrubbing system)	Ammonia	periodic over minimum 1- hour period	Once every 6 months, or more frequent if stated in the permit	Emissions of pollutants into the environment through any kind of duct, pipe, stack, etc
	H_2S			
	Odour concentration		Once every 6 months, or more frequent if stated in the permit	BS EN 13725
Flare	Operational hours	Recorded duration and frequency.	Continuous	Operational record including date, time and duration of use shall be recorded
Pressure relief valves	Biogas release and operational events	Recorded duration and frequency.	Daily inspection	Operational record including date, time duration of pressure relief events and calculated annual mass release

6.8.1.1 Assessment of the sampling locations

Version 13 of the Application Form C3 was made available on 7 December 2021, which includes a new question 4b point source emissions to air, that requires details of the design of the sampling locations. The application to vary the permit has been prepared to meet the

deadline set by the Environment Agency, however, the gathering of information to respond to C3 4b was not feasible. Southern Water will respond to the list of queries in C3 4b as soon as practicable following the submission.

Where suitable and available, any monitoring, sampling and analysis of emissions to air or water will be undertaken in accordance with MCERTS, or equivalent agreed standards, by relevant and appropriately accredited contractors. An assessment of sampling locations is not appropriate as this will be the responsibility of the sub-contractors.

6.8.1.2 Sampling locations and BS EN 15259

The requirements of BS EN 15259 have been met, however, Southern Water does not believe the BS EN 15259 applies at the Site due to the diameter of circular ducts. Under the Environment Agency's Method Implementation Document for EN 15259:2007 circular ducts with diameters <1.13m are not required to meet BS EN 15259.

Summary responses to the questions answered no for Question 4 of Part C3:

Question	Response
If horizontal, is the duct square or rectangular (unless it is less than or equal to 0.35 m in diameter)	Not applicable, as ducts are circular

6.8.2 Emissions to water (other than sewers)

There are no direct releases to controlled waters of emissions arising from the STC. As such, no monitoring or reporting is required.

6.8.3 Emissions to sewers, effluent treatment plants or other transfers off-site

The release of liquors from the sludge treatment process is considered to be either point source emissions or direct discharges to sewers, as part of the permit operation. The site layout plan, drawing reference 790101_MSD_SiteLayoutPlan_BUD January 2025, identifies the point at which liquors leave the site to enter the WTW at the inlet. A sampling location has also been identified on the site layout plan, although sampling will be undertaken as part of a wider implementation plan under BAT and IED.

Southern Water confirms that they will undertake a chemical analysis of their wastewater, from the STC entering the adjacent WTW, which tests all pollutants they expect to find in the discharge to fully characterise the emissions to water. They propose a minimum of 12 sampling runs over a 12-month period (1 full sampling spec per month) initially, to establish a baseline, in accordance with the surface water pollution risk assessment guidance or other applicable guidance such as MCERTS or ISO standards, where appropriate. Southern Water will then take an informed viewpoint of the determinants the samples contain demonstrating those that are not in the sample. An H1 assessment to screen out any that are not applicable or relevant will be completed. Sampling and analysis will be undertaken using a UKAS accredited, or equivalent, laboratory. This commitment falls within the Implementation Plan for meeting BAT and IED compliance. An implementation plan is shown in document reference 790101_MSD_ImplementationPlan December 2023. It is therefore, considered that this will be added as Improvement Conditions to the permit.

Condensate from the CHP exhaust is collected in condensate pots which lead directly to the drainage system and to the head of works of the adjacent Budds Farm WTW and will undergo treatment through the works before being discharged under an existing environmental permit for discharge to water. This condensate is clean, uncontaminated water and occurs in small volumes. As such, no monitoring or reporting is required. There are no direct releases to public sewer or other transfers off-site of emissions arising from the STC.

6.8.4 Emissions to land

There are no direct releases to land of emissions arising from the STC. As required by the Southern Water EMS various housekeeping and waste management practices are in place to monitor waste emissions. These include segregation of wastes according to their classification and nature, labelling waste and using designated storage containers.

In accordance with the Southern Water EMS Policy solid waste is disposed of in accordance with 'Duty of Care' Regulations. The composition of the waste, its hazard characteristics and any relevant precautions are clearly stated on the transfer notes provided to licensed waste contractors removing waste from Site for recycling and/or disposal. Records are maintained on-site and reported to the regulator as required by the Permit.

6.9 Environmental impact assessment

The proposal is not subject to an environmental impact assessment under Council Directive 85/337/EEC of 27 June 1985 [Environmental Impact Assessment] (EIA).

6.10 Question 6: Resource efficiency and climate change

6.10.1 Basic energy requirements

Southern Water aims to maximise the efficiency of the energy flows from its processes ensuring that, where possible, heat is recovered, and energy is not wasted.

There are a number of pieces of infrastructure and equipment that use electrical energy supply including:

- Fans, coolers and heating
- Motors and motor drivers and drive systems
- Aeration
- Pumps/boosters/conveyors
- Facilities – heating and lighting
- Sludge handling and management e.g. AD, dewatering and polymer dosing equipment
- Ventilation and odour control/abatement systems

Biogas is used to provide energy, produced by burning in a CHP engine, for the Site's processes.

6.10.2 Question 6a: Basic measures for improving energy efficiency

Biogas is a renewable gas, produced from organic waste and is reused on-site to power its energy requirements and to generate heat to assist with wastewater and sludge treatment processes. A key objective of the Southern Water EMS is to reduce energy consumption from the grid. Southern Water has a specific Energy and Carbon Manual, which contains objectives for the energy consumption. Southern Water recognises that target setting for, and measurement of, energy and carbon reduction is pivotal to reducing energy use and carbon emissions in new and existing installations. Southern Water is currently in the process of better understanding economic levels of energy efficiency, renewable energy generation and carbon reduction (embodied and operational), which will help the company develop and set company and project level reduction targets.

Southern Water is dealing with the measurement and reporting of operational carbon emissions in existing installations through:

- Monitoring of energy use from electricity meters

- Quarterly estimation and reporting of operational carbon emissions for internal reporting purposes
- Annual estimation and reporting of operational carbon emissions for regulatory reporting (Ofwat and CRC)

Energy efficiency measures implemented at the Site include (but not limited to) the following:

- The combustion temperature is maintained relatively constant for reduced NOx emissions and increased efficiency.
- The engines are equipped with turbochargers, further increasing energy efficiency.
- Ongoing monitoring of plant operating parameters is carried out to ensure process is operating optimally and to enable constant optimisation to increase the plant's efficiency.
- Good housekeeping measures are employed, and regular preventative maintenance will ensure the operations, and therefore energy efficiency is optimised.
- Low-cost measures are in place to avoid inefficiencies of excessive heating or cooling include:
  - Insulation of main hot water pipes
  - Insulation of heating equipment such as hot water heat exchanger, boiler feed water tank and boiler feed water pumps and pipework
- Utilising low energy equipment for lighting such as:
  - High frequency fluorescent lighting, high pressure sodium or LED
  - Allowing for local or modular switching, where appropriate
- Consideration of energy recovery and the deployment of renewable energy systems, including:
  - Micro-hydro applications
  - Advanced sludge digestion
  - CHP
  - Use of solar panels and wind generation

Heat generated from the CHP is used in the AD process. The energy created by burning of biogas in the CHP engine is used to supply the Site to reduce the need to import electricity from the grid.

The development of an energy efficiency plan will be considered once the Site is permitted; this will determine areas of improvement and will be developed under Southern Water's Environmental Policy and EMS.

Southern Water carries out planned maintenance as a means to ensure operations are energy efficient. Overall, the energy use is relatively low, and the purpose of the installation is to produce energy by supplying biogas. No further measures are identified at this stage to improve upon energy efficiency. Nevertheless, Southern Water will regularly review energy use and disclose potential opportunities to reduce energy consumption from the four-yearly (or more frequent) energy reviews as required by a varied permit. In addition, Southern Water implements optimisation measures across all its sites in a proactive approach to ensuring efficiency measures across all its site operations meet optimal and efficient operating requirements.

6.10.3 Question 6b: Changes to the energy the permitted activities use up and create

There will not be any changes to the energy that the permitted activities use or create.

6.10.4 Question 6c: Climate change levy agreement

Southern Water is not a participant to the Climate Change Levy (CCL) agreement.

6.10.5 Question 6d: Raw and other materials, other substances, and water use

Details of waste generated at the Site is demonstrated in document reference 790101_MSD_ResidueMP_BUD January 2025.

6.10.6 Question 6e: Reducing production of waste

Details of waste generated at the Site is demonstrated in document reference 790101_MSD_ResidueMP_BUD January 2025.

7 Part B6 – New bespoke water discharge activity or groundwater activity (point source discharge) or point source emission to water from an installation

The form responds to question listed in Table 1 of the B6 application form for the last listed option 'Effluent and/or contaminated surface water run - off arising from the operation of an installation.

Therefore, only the following questions have been responded to:

Type of effluent	Charge band	Please tick box	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Effluent and/or contaminated surface water run-off arising from the operation of an installation	No additional charge, as already included as part of the installation permit application charge	☑	a, b, d	c	b, c, d, f	--	a, b2	a, b, c	b, c, d, e, f, g	b, d, e, f	a, b, d, e, f, h, i	a, b, c

* Check the relevant question and our guidance notes on part B6 to see if you need to give an answer.

Note Question 6c is not within the application, despite being listed as being required by Table 1 of the application form.

7.1 Question 1 About the variation you are applying for

Effluent description: Return liquors from the STC process and condensate from the gas pipelines and gas storage bag.

Effluent name: STC return liquors.

7.2 Question 2 How long will you need to discharge for?

The discharge will not be time limited, will take place all year and continuously (e.g. for more than six days in any year)

7.3 Question 3 How much do you want to discharge?

Southern Water is not aware of the quantity of water sent to the inlet works from the STC because it is not currently monitored, therefore no details have been provided for Question 3. An implementation plan has been developed as part of the accompanying IED permit application.

7.4 Question 5 Should your discharge be made to the foul sewer?

The discharge point (inlet works, W1 (document reference 790101_MSD_SiteLayoutPlan_BUD January 2025) is located within the operator's own wastewater treatment works, therefore, the distance to the nearest foul sewer is 0m and response to Question 5b2 is not applicable.

7.5 Question 6 How will the effluent be treated?

Effluent is not treated before reaching the inlet work because once leaving the inlet works the effluent will be treated through the Wastewater Treatment Works. The process description is

provided in Section 3. An implementation plan has been developed as part of the accompanying IED permit application. It is expected that Improvement Conditions in the IED permit will provided and Southern Water will identify how it will monitor and characterise the liquors returning to the head of the adjacent Budds Farm WTW.

7.6 Question 7 What will be in the effluent?

Southern Water is not aware of the composition of the effluent discharged to the inlet works from the STC because it is not currently monitored, therefore, no details have been provided for Question 7.

The temperature of effluent is not known but since the water is not direct from processes it is expected to be ambient.

An implementation plan has been developed as part of the accompanying IED permit application. It is expected that Improvement Conditions in the IED permit will be provided and Southern Water will identify how it will monitor and characterise the liquors returning to the head of the adjacent Budds Farm WTW.

Where suitable and available, any monitoring, sampling and analysis of emissions to water is undertaken according to MCERTS, or equivalent standards, by MCERTs accredited contractors, as set out in Southern Water's commitment in section 6.8.

7.7 Question 8 Environmental risk assessments and modelling

Discharges to lakes, estuaries, coastal waters or bathing waters

Southern Water is not aware of the composition of the effluent discharged to the inlet works from the STC because it is not currently monitored, therefore, screening cannot be undertaken at this time.

An implementation plan has been developed as part of the accompanying IED permit application. It is expected that Improvement Conditions in the IED permit will provided and Southern Water will identify how it will monitor and characterise the liquors returning to the head of the adjacent Budds Farm WTW.

Where suitable and available, any monitoring, sampling and analysis of emissions to water is undertaken according to MCERTS, or equivalent standards, by MCERTs accredited contractors, as set out in Southern Water's commitment in Section 6.8.

7.8 Question 9 Monitoring arrangements

Effluent monitoring will be in line with permit conditions. An implementation plan has been developed as part of the accompanying IED permit application. It is expected that Improvement Conditions in the IED permit will provided and Southern Water will identify how, and the final locations of whether, it will monitor and characterise the liquors returning to the head of the adjacent Budds Farm WwTW.

Where suitable and available, any monitoring, sampling and analysis of emissions to water is undertaken according to MCERTS, or equivalent standards, by MCERTs accredited contractors, as set out in Southern Water's commitment in Section 6.8.

7.9 Appendix 4 Discharges to tidal river, tidal stream, estuary or coastal waters

The discharge of secondary treated sewage effluent from the WTW is permitted under the permit reference A.751/H/97, from Outlet 1 in The Solent at National Grid Reference, SZ 6679 9325 and Outlet 2 in Langstone Harbour at National Grid Reference, SU 7054 0510.

Discharge from Outlet 2 is limited to caveated circumstances listed in Table S1.1 within permit A.751/H/97. Therefore, for the purpose of this application, the discharge referred to in Appendix 4 refers to Outlet 1 as this is the primary discharge point from Budds Farm WTW.

Discharges of secondary treated sewage effluent from Outlet 1 are limited to the following specifications - 'Via a 1400mm diameter pipe terminating with a diffuser section of 96 metres in length and consisting of 9 ports of maximum diameter 406mm and spaced at 12 metre intervals with the top inner surface of the outfall pipe/uppermost diffuser ports located below 17.74m Ordnance Datum Newlyn (ODN)'.

Secondary treated sewage effluent sampling is monitored at National Grid Reference, SU 7071 0528.

8 Part F1 – Charges and declarations

8.1 Question 1: Working out charges

Table 1, Table 2 and Table 3 are completed on the Part F1 form.

8.2 Question 2: Payment

Payment will be made by BACS.

8.3 Question 4: Confidentiality and National Security

Southern Water do not wish to claim confidentiality with this application.

8.4 Question 6: Application checklist

Table 8.1 provides a list of section/document references included in the application.

Table 8.1: Part F, Question 6, Table 4: Application checklist

Question reference	Document title	Documents reference
Part A – Q5c Part A – Appendix 1 Part C2 – Appendix 2	Details of Directors	790101_MSD_Directors February 2024
Part C2 – Q3a Part C2 – Appendix 2	List of Relevant Offences	790101_MSD_RelevantOffences December 2023
Part C2 – Q3b	Competency Management System Agreement	790101_MSD_CMS December 2023
Part C2 – Q3d	Environmental Management System Certificate	790101_MSD_EMS December 2023
Part C2 – Q5a	Site Location Plan	790101_MSDS_SiteLayoutPlan_BUD January 2025
	Site Layout Plan	
	Drainage Plan	790101_MSD_DrainagePlan_BUD
Part C2 – Q5b	Site Condition Report	790101_MSD_SCR_BUD January 2025
Part C2 – Q6	Environmental Risk Assessment	790101_MSD_ERA_BUD January 2025 790101_MSD_Maps_BUD February 2024
	Climate Change Risk Assessment	790101_ERA_CCRA_BUD
Part B4 – Q1b Part C3 – Q1b Part C4 – Q1b	Waste Codes	Appendix A of 790101_MSD_Main_BUD January 2025
	Annual throughput data	790101_AnnualThroughput_BUD January 2025
	Waste Transfer Notes	790101_MSD_WasteTransferNotes_BUD January 2025
Part C3 – Q3a Part C3 – Q3c Part C4 – Q3a	Schematics	790101_MSD_Schematics_BUD January 2025
	BAT Analysis	790101_MSD_BAT_BUD January 2025
	Implementation Plan	790101_MSD_Implementation Plan December 2023
	Leak detection and repair Plan	790101_MSD_LDAR_BUD February 2024
	Residues Management Plan	790101_MSD_ResidueMP_BUD January 2025
	Accident Management Plan	790101_MSD_AMP_BUD February 2024
	Duty of care (waste acceptance)	790101_WasteAcceptance_BUD January 2025
Part B4 – Q3b Part C3 – Q3b Part C4 – Q3b	Odour Management Plan	790101_ERA_OdourMP_BUD January 2025
	Bioaerosol Risk Assessment	790101_ERA_BioRA_BUD February 2024

Question reference	Document title	Documents reference
Part B4 – Q4a Part C4 – Q4a	Monitoring	790101_Sampling proposal_BUD January 2025
Part C3 – Q3c, Table 5	Materials Safety Data Sheets	790101_MSD_MSDS_BUD February 2024
Part B6	Main Supporting Document Implementation Plan Site Layout Plan	Section 7 – 790101_MSD_Main_BUD January 2025 790101_PartB6_BUD 790101_MSD_SiteLayoutPlan_BUD January 2025 790101_MSD_ImplementationPlan December 2023
Part A – Q7 Paat B4 – Q1,2,3 Part C2 – Q2,3,5,6 Part C3 – Q1,2,3,4,6 Part C4 – Q1,2,3,4 Part F1 – Q1,2,6	Main Supporting Document	790101_MSD_Main_BUD January 2025

A. Waste Codes

A.1 Wastes imported for Anaerobic Digestion

It is requested that the annual quantity of indigenous sludge and liquid sludge imports to be accepted is 1,126,898 wet tonnes.

EWC Code	Waste Description	Where accepted	Indigenous or imported	Justification for use
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**			
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05 (sewage sludge only)	AD pre-digestion	Raw/digested cake-imported	
19 08	**wastes from waste water treatment plants not otherwise specified**			
19 08 05	sludges from treating urban waste water	AD pre-digestion	Indigenous/Imported	

A.2 Wastes received under the Controlled Waste Regulations 2012*

EWC Code	Description	Where accepted	Indigenous or imported	Justification for use
20 03	**Other municipal wastes**			
20 03 04	septic tank sludge	Head of works	Imported	
20 03 06	waste from sewage cleaning	Head of works	Imported	

*Southern Water acknowledge these waste codes will not be included in the permit

A.3 Wastes to import under a waste activity permit

It is requested that the annual quantity of digestate imported for dewatering is 1,000 wet tonnes.

EWC Code	Description	Where accepted	Indigenous or imported	Justification for use
19 06	**wastes from anaerobic treatment of waste**			
19 06 06	digestate from anaerobic treatment of animal and vegetable waste - digested cake	Dewatering/ Cake Bay post digestion	Indigenous/Imported	Used for intersite transfers of post digested liquid sludge as per EMS480. Common example of this is if centrifuges are offline which necessitates exports of digested liquid. Definition is with reference to RPS231. https://www.gov.uk/government/publications/waste-codes-for-sewage-sludge-and-sludge-containing-other-materials-rps-231/waste-codes-for-sewage-sludge-and-sludge

A.4 Tankered waste imports under a waste activity permit

It is intended that the annual quantity of tankered waste to be imported to the head of works remains as 339,202 wet tonnes.

All waste codes below are imported, therefore none are indigenous.

EWC Code	Waste Description	Where accepted	Imported
02 02	**wastes from the preparation and processing of meat, fish and other foods of animal origin**		
02 02 01	sludges from washing and cleaning	Head of works	Imported
02 02 04	sludges from on-site effluent treatment	Head of works	Imported
16 10	**aqueous liquid wastes destined for off-site treatment**		
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01; Cess waste and other sewage sludge only; Cess liquor and chemical toilet waste	Head of works	Imported
19 07	**landfill leachate**		
19 07 03	landfill leachate other than those mentioned in 19 07 02	Head of works	Imported
19 09	**wastes from the preparation of water intended for human consumption or water for industrial use**		
19 09 02	sludges from water clarification	Head of works	Imported
19 09 06	Solutions and sludge from regeneration of ion exchangers	Head of works	Imported

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