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SW IED Site Condition Report
Millbrook

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	03/02/2022	A Bagdadi	S Blackman	A Manns	First Issue
B	16/05/2022	A Bagdadi	S Blackman	A Manns	Second Issue
C	22/06/2022	A Bagdadi	S Blackman	A Manns	Final Issue
D	20/02/2024	SM Bukar	S Stone	A Manns	Update for client review
E	08/08/2024	I Moss	S Blackman	A Manns	Updated to include Slowhill infrastructure

Document reference: 790101_MSD_SCR_MIL August 2024

Information class: Standard

Document purpose:

A Site Condition Report (SCR) provides information regarding the condition of the land and groundwater at permitted sites at particular points in time throughout its permit history. It is an on-going record of the potential and known contamination risks before a permit is granted, whilst activities are carried out under a permit and at the time of surrounding the permit.

The SCR will be submitted as required for Form B2/C2, Question 5b and will be completed following the Environment Agency's Environmental permitting: H5 Site condition report guidance (2013)[1]. The template structure is directly from the Environment Agency's H5 Site Condition Report word template.

For all new permits **sections 1 to 3** will be completed.

For sites that are currently permitted **section 1 to 7** will be completed, updating sections from the previous Site Condition Report where available.

Section 8 to 10 are not to be edited; these address surrender of the permit at a later date.

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

1.0 Site details	
Name of the applicant	Southern Water Services Limited
Activity address	Millbrook Sludge Treatment Centre, Western Avenue, Western Docks, Southampton, Hampshire, SO15 0HH
National grid reference	SU 38755 12378

Document reference and dates for Site Condition Report at permit application and surrender	Site Condition Report: 790101_MSD_SCR_MIL August 2024 Date of Permit Application: TBC Date of Surrender: TBC

Document references for site plans (including location and boundaries)	790101_MSD_SiteLayoutPlan_MIL&SHC October 2024

2.0 Condition of the land at permit issue	
Environmental setting including: • geology • hydrogeology • surface waters	**Land Use:** Millbrook Sludge Treatment Centre (STC) is located along the western docks in Southampton. The STC accepts indigenous and imported sludge that is pumped via an underground pipe from the sludge reception area at Slowhill Copse Wastewater Treatment Works' (WTW), located on the opposite bank of the Western Docks. Slowhill Copse and Millbrook STC have a 'technical connection' due to the presence of an underground pipe, and therefore, these two facilities are collectively referred to as the "Site", as both sites comprise the proposed permitted activities. The layout of the two facilities is shown in the following plans.

Millbrook STC:

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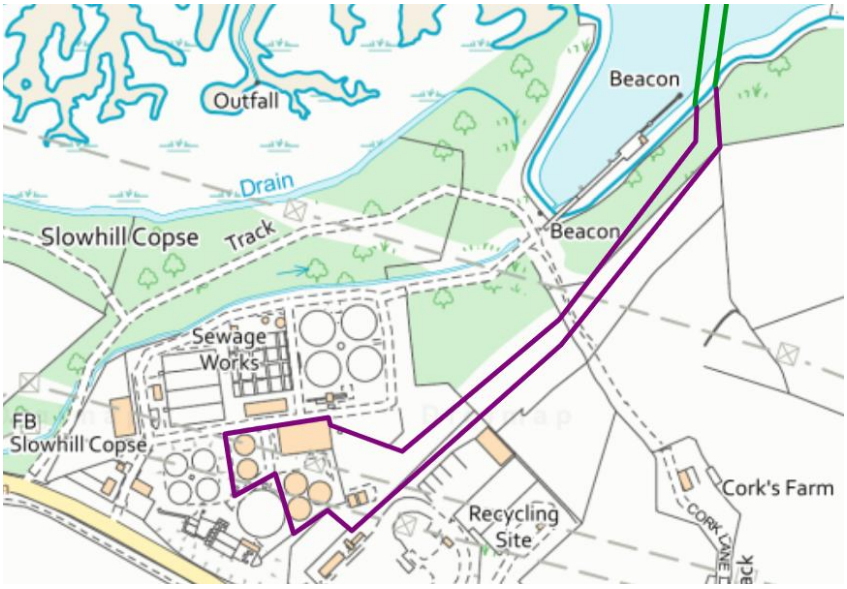
Source: Mott MacDonald (2024)

Slowhill Copse sludge reception area:



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Source: Mott MacDonald (2024)

Geology:

Artificial geology:

Mapped artificial geology at Millbrook STC comprises Made Ground deposits, indicating that the deposits are at least 2.5m thick in the area. Made Ground deposits are widespread in the area along the banks of the River Test, indicating that the ground is likely reclaimed land.

At the Slowhill Copse sludge reception area (SHCSR), mapped artificial geology is shown to comprise infilled ground where the pre-existing land

	surface has been excavated (Worked Ground) and subsequently wholly backfilled (Made Ground). The infilled ground close to the SHCSR is likely associated with historic gravel pits. Superficial deposits: Superficial geology at Millbrook STC consists of Tidal Flat Deposits comprising clay and silt, Holocene in age. Tidal Flat Deposits are deposited on extensive, nearly horizontal land in the intertidal zone that is alternately covered and uncovered by the rise and fall of the tide. Underlying these Tidal Flat Deposits are River Terrace Deposits, comprising interbedded layers of sand and gravel, and clay and silt. The superficial geology at the SHCSR consists of River Terrace Deposits, comprising sand and gravel with lenses of silt, clay or peat. Bedrock: The Millbrook STC portion of the Site lies upon the Earnley Sand Formation, comprising sand, silt and clay, Lutetian in age. A band of the Wittering Formation lies approximately 300m to the north of the Site and the Marsh Farm Formation lies adjacent to the south of the Site, both consisting of clay, silt and sand, Lutetian in age. These formations all belong to the Bracklesham Group. The SHCSR lies partially upon Selsey Sand Formation, comprising sand, silt and clay and Barton Clay Formation, a sedimentary bedrock. Selsey Sand Formation belongs to the Bracklesham Group and Barton Clay Formation belongs to the Barton Group. **Hydrogeology:** The Tidal Flat Deposits underlying Millbrook STC are classified by the Environment Agency as Unproductive strata. However, the River Terrace Deposits below this are classified as a Secondary A aquifer. A Secondary A aquifer also exists in the Bracklesham Group bedrock, with medium vulnerability. Similarly, the River Terrace deposits underlying the SHCSR are classified as a Secondary A aquifer. A Secondary A aquifer also exists in the Barton Clay Formation, but with medium-high vulnerability. No source protection zones (SPZ) or groundwater abstractions are known to exist within 1km of the Site. **Hydrology and flooding** The River Test lies approximately 500m to the east of Millbrook STC at its closest point (where the Southampton Docks are located). In this area, the Test flows in approximately a north-west to south-east direction towards The Solent. Millbrook STC is located in an Environment Agency zone 1 flood risk area. Areas within zone 1 have 1 in a 1,000 chance of river or sea related flooding. The River Test and Bury Marsh are located less than 250m north of the SHCSR. Given the close proximity of the River Test and Bury Marsh to the

	SHCSR, it falls within a zone 3 flooding risk area. Areas within flood zone 3 have been shown to be at a 1% or greater probability of flooding from rivers or 0.5% or greater probability of flooding from rivers/ the sea. **Sensitive land use:** The Millbrook STC portion of the Site is located within a nitrate vulnerable zone (NVZ), with concern over eutrophic water conditions in the Hamble estuary. The SHCSR is located within 250m of Bury Marsh, a Natural England Site of Special Scientific Interest (SSSI). The marsh is also designated as a wetland of international importance under the Ramsar Convention. The River Test which lies close to the Site (500m to the east of Millbrook STC and less than 250m to the north-east of the SHCSR) is a Natural England Special Protection Area, as it forms a part of the Solent and Dorset Coast.
Pollution history including: • pollution incidents that may have affected land • historical land-uses and associated contaminants • any visual/olfactory evidence of existing contamination • evidence of damage to pollution prevention measures	**Recorded landfill and Historical landfill:** One BGS recorded landfill site is located 100m to the west of Millbrook STC. BGS information indicates that it does not provide a threat to ground or surface water. A historical landfill site is recorded as being present in the same location. This historical landfill was operational between 1956 and 1971 and accepted waste, including household waste. A historic landfill site has also been identified 170m south-east of the SHCSR. The landfill site was last operational in 1990 and accepted inert and household waste. **Pollution Incidents** No Category 1 or 2 pollution incident have been identified within 250m of the Site. **Registered Waste Treatment or Disposal Sites** Licenced waste management facilities include one on-site operated by Southern Water Services Limited, which is for the operation of the combined heat and power (CHP) gas engine at the WTW. A licenced waste management facility is located within 250m of the Site; a waste treatment site for the production of soil, is located approximately 70m west of Millbrook STC. Marchwood Household Waste Recycling Centre is located 100m to the south-east of the SHCSR. Historically, in the 1970s, the recycling centre was operated as a refuse incineration plant. **Radon** The Site is in a low probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Hence, no radon preventative measures are required.

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Nearby industrial land uses

Four active contemporary trade directives are located within 250m of the Millbrook STC, including; a cargo handling service, a HGC refuelling site, garage and gas supplier.

Additionally,14 inactive contemporary trade directives are present within 250m of Millbrook STC, predominantly along Southampton western docks entailing of freight, cargo and cleaning services.

The Marchwood Household Waste Recycling Centre to the south-east of the SHCSR is active. A vehicle repair shop at the entrance to the SHCSR is also active. No other active contemporary trades have been identified within 250m of the SHCSR.

Discharge consent:

- On-site - operated by Southern Water Services Limited enabling storm sewage overflow to be discharged into a freshwater stream/river, authority permitted by the Environment Agency.
- Approximately 50m west- nine consents operated by Southern Water Services Limited entailing of sewage, pumping station discharge to be released into the River Test authority permitted by the Environment Agency. Licence revocation dates for the nine consents ranging between 1977 and 2010.
- Approximately 56m northwest from the Site – operated by I.B.M Limited consisting of trade effluent and discharged into a saline estuary authority permitted by the Environment Agency. Licence revoked in 1991.

Integrated pollution and prevention controls:

Millbrook

Three integrated pollution and prevention controls on-site for Millbrook WTW are presented in the Envirocheck report:

- Permit TP3434ZD – effective 2013 (but no longer on the Environment Agency's Public Register)
- Permit CP3535XU – for the operation of the CHP, last varied in 2020
  - Including Permit YP3931QD – effective 2020, for the operation of a Tranche B generator

SHCSR

The SHCSR has a bespoke permit (EPR/ GP3792HY) for the import of tankered waste.

Local authority pollution and prevention controls:

Within 250m of the Site, active LAPPC permits include waste oil burners, and a petrol station.

Revoked permits also include metal foundry processes, and vehicle respraying.

	Mining and quarrying: The Site is in an area not currently affected by mining or quarrying. Historically, two gravel pits were located on the Slowhill Copse, Marchwood WTW site. In the 1930s the open-pit mines were used to extract gravel and sand, however, the pits have since been wholly backfilled, although the nature of the backfill is unknown. **Historical land use:** Millbrook ● Earliest mapping of the area in 1871 (Envirocheck, 2021) indicates the land was occupied by Millbrook marsh, with a rifle range present on Site. London and southwestern railway tracks were located along the northern border of the Site and the high water mark of the River Test borders the south of the Site. Approximately 150m to the north, a saw mill is marked, and 500m to the north is a brickfield and iron works, ● By 1898 mapping, the Site itself does not show any significant changes, however the channel of the river is now approximately 350m south and mudflats with creeks are marked between the Site and river. The brickfield and iron works to the north are now shown as 'old gravel pit' and 'varnish works' respectively. ● In 1910, the Site shows no changes, however the mudflats around the Site are now shown as saltings. The varnish works are no longer present. ● In 1933, a graving dock is in the process of being constructed 50m to the east of the Site. In 1938, the north of the Site was still occupied by marshland however an isolation hospital and tank are located to south of the Site. Additionally, the completed King George V graving dock is located 50m to the east of the Site's perimeter. Significant residential development has occurred 400m to the north of the Site. ● Mapping from 1947 shows a large (150m diameter) pond approximately 30m to the south-east of the Site, which is bordered by labels showing 'refuse tip' which extend to the Site boundary. A scrap metal yard is present 50m to the north-east of the Site. ● By 1952, mapping shows that the sewage works is present in the north of the Site. The isolation hospital in the south of the Site is now marked as a boat yard. In 1956, mapping shows engineering works, warehousing, a plant depot, concrete works and a garage within 250m of the Site. ● In 1963, Millbrook WTW opened in 1963. Mud and marshland surrounded the Site and a sand pit was present to the east of the Site. ● By 1968, further development has occurred on-site, with the WTW now showing infrastructure across the Site, although the boat yard in the south is still labelled. A depot is present to the east of the Site between the Site and King George's graving dock, where the pond used to be (assumed to have been infilled). A 'refuse tip' is also marked 50m to the west of the Site.

	● The Prince Charles container terminal was built to the south of the Site on the mud flats/saltings by 1978. A tank and electrical substation are shown 100m to the south-west of the Site ● Further development onsite and in the surrounding Southampton docks area occurred between 1984 and 1989 including the opening of HM customs offices and additional tanks adjacent to the west of the Site boundary. ● Development of WTW infrastructure is noted up until 2021, when the current Site layout is seen. <u>SHCSR</u> ● Before 1930, historical mapping indicates that the Site and surrounding area were fields and agricultural land, adjacent to Slowhill Copse and Cork's Farm. ● In the 1930s, two gravel pits are located on the Site. ● By 1960, the gravel pits are no longer present on the Site. ● By the 1970s, mapping shows that Slowhill Copse sewage works is operational and WTW infrastructure is present across the Site. Marchwood Refuse Incineration Plant is shown to the south-east of the Site. ● The current Site layout is similar to mapping from the 1970s. However, Marchwood Refuse Incineration Plant has been converted to Marchwood Household Recycling Centre. **<u>Soil chemistry:</u>** The Envirocheck report indicates background baseline soil concentrations in the area of: ● <15mg/kg of arsenic, ● <1.8mg/kg cadmium, ● 60-90mg/kg chromium, ● <100mg/kg of lead and ● 15-30mg/kg nickel. **<u>Contaminants of concern:</u>** The following contaminants are of concern regarding the industrial activities stated above, in addition to the current use of the Site: ● total petroleum hydrocarbons (TPH); ● polycyclic aromatic hydrocarbons (PAH); ● heavy metals and inorganics; ● pathogens; ● asbestos; ● polychlorinated biphenyls (PCBs); ● chlorinated solvents and phenols; and ● volatile and semi-volatile organic compounds (VOC/SVOC). There may also be ground gases present, likely comprising CO_2 and CH_4.

Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	**Site walkover** A visit of Millbrook STC was undertaken by waste specialists from Mott MacDonald on 18 January 2022. Notes from the visit are presented in Appendix A, and a summary of pertinent points is below: ● Some minor cracking of the hardstanding was noted as well as permeable gravel around the digesters. Large areas of the site were covered in moss, which may be hiding imperfections and may suggest area is generally damp. The hardstanding also showed evidence of debris/mud across the Site, especially along curbing and other edges. ● Site waste was stored in skips on areas of hardstanding. Most chemicals bunded or stored indoors however some occurrences of containers on areas of gravel. ● Condition of tanks was good- no sign of corrosion, although staining and moss growth on side of one sludge storage tank may indicate ongoing small leak. ● Anecdotal evidence of an overspill (c2019) of one of the PSTs when the uplift station stopped working. **Planning applications** Millbrook A search of the Southampton City Council planning portal on the 30th May 2024 suggests that in 2023, planning permission was granted for the erection of a new building at Millbroook WTW to house a standby generator. Planning permission reference number - 23/00809/FUL. Planning permission was also granted for the construction of new and replacement wastewater facilities, including three kiosks and an activated sludge plant in 2011. Planning application reference number -11/01782/FUL. Plans for the development of new buildings to provide additional sludge treatment capacity including a cake silo storage tank and an anaerobic digestion tank at the Millbrook site were withdrawn in 2013. Planning application reference number - 14/00007/FUL. Planning permission in 2016 was approved for the addition of a building to contain an additional CHP kiosk. Planning application reference number - 16/00658/FUL. Additionally, planning permission for the erection of a digester and two kiosks was approved in 2017 under application reference 17/01141/FUL. No relevant information on contamination was identified in any of the above applications. SHCSR A search of the New Forest District Council planning portal on the 30th May 2024, implies that in 2024, planning permission was granted for the construction and operation of a Motor Control Centre (MCC) equipment kiosk at Slowhill Copse WTW. Planning permission reference number – 24/10136.

	No relevant information on contamination was identified in this application. No further planning applications have been identified for locations within 250m of the SHCSR.
Baseline soil and groundwater reference data	No baseline soils or groundwater reference data is known to exist for the Site.
Supporting information	• British Geological Survey, GeoIndex www.bgs.ac.uk consulted May 2024; • Magic Map http://magic.gov.uk/ consulted May 2024. • Landmark (2021), Envirocheck Report (Reference number: 100419175-001) – Millbrook WTW

3.0 Permitted activities	
Overview of site processes	Millbrook catchment serves parts of Southampton City with a population equivalent of 141,214. The sewage network is mainly gravity foul sewers and combined sewers. There are 24 No. wastewater pumping stations in the network however there is no terminal pumping station in the catchment. **SHCSR** The site serves as a liquid sludge transit centre receiving around 3477m^3 per week of liquid sludge from local sites. Co-settled primary sludge and imported sludge are stored in 3 No. pre-screening sludge holding tanks. Combined sludge is screened by 2 No. strain presses. Screened sludge is pumped to 2 No. screened sludge holding tanks before being pumped to Millbrook STC for treatment. As some of the imported sludge is already partially thickened and liquid sludge is pumped rather than tankered off site, minimum sludge decants, or liquor are returned during normal operation. **Millbrook STC** The Site serves as a regional sludge treatment centre (STC). The STC handles sludge from SHCSR, which serves as a sludge terminal receiving sludge from the New Forest area by tankers, from Portswood WTW and Woolston WTW by barges (stopped in late 2020). Sludge is stored, screened and pumped by a sludge pumping station at SHCSRvia a sludge rising main to Millbrook STC. Current (2019-20) daily average sludge volume imported from SHCSRis 4617m^3/week. (More sludge will be received as cake when the barge operation scales down or stops). There is a sludge cake reception and blending facility which is received 90m^3/week in late 2020. (This could increase when barge operate scales down or stops). Imported sludge makes up 71% of the sludge loads to the STC. Indigenous sludge and imported sludge via road tankers are pumped through 3 No. sludge screens and stored in 2 No. post screening storage tanks (PSST). 5100 m^3 of additional pre-thickening sludge storage capacity are provided at SHCSR which helps to balance the sludge throughput at Millbrook STC. Imported cake is blended with indigenous sludge or imported liquid sludge. Imported pumped sludge is screened at SHCSR and is

	discharged directly into the PSSTs. Screened sludge from the PSSTs is fed to 2 No. belt thickeners and dosed with polymer. Thickened sludge with 7% TDS 2 no. thickened sludge tanks from where it is fed to 4 No. anaerobic digesters. Digested sludge discharges into 2 No. post digestion storage tanks from where it is fed to 3 No. centrifuges for dewatering. Lime is dosed into digested sludge before the centrifuges to achieve required sludge quality for recycling. Biogas produced by the digesters are stored in 1 No. gas holder and fed to 2 No. CHP engines for power and heat generation. Excess gas is burned off by 1 No. gas flare. Digested cake is stored in a silo and transported by sealed covered skips to recycle to agricultural land. When the silo is not in operation an alternative cake bay (a skip within the building housing the conveyor) is used and removed from the Site. Odour control is provided for the sludge reception tanks, PSSTs, gravidity belt thickeners, digester feed tank and centrifuges. Foul air is treated by 1 No. caustic and hypochlorite wet chemical scrubber. The works return pumping station collects various drainage flows associated with ASP3 and return upstream of the PSTs for treatment. Liquors from the sludge treatment centre is discharged to a liquor well and pumped by the liquors pumping station upstream of the primary settlement tanks. Storm tanks were refurbished with new jetting pumps and controls installed in 2019 as part of an AMP6 capital maintenance scheme. An AMP6 STC upgrade scheme was carried in 2020 which included the following scope: ● Replacement of 3 No strain presses ● 1 No new primary anaerobic digester ● 1 No new sludge dewatering centrifuge with 1 No new centrifuge feed pump and 1 No new lime dosing pump ● Upgrading of the sludge cake reception facility including new screw conveyor to enable an increase of Site's overall sludge throughput from 11,300-ton DS/year to 20,000-ton DS/year ● Replacement of duty/standby cake dilution pumps ● Replacement of duty/standby cake blending pumps ● New sludge blending transfer pump ● 2 No new thickened sludge holding tanks ● 2 No new digester feed pumps ● 1 No post digestion storage tanks ● 1 No standby digested case conveyor to cake silo Replacement of polymer dosing system for sludge dewatering
Permitted activities	There is an existing environmental permit which relates to the Millbrook WTW site (reference EPR/CP3535XU) for operation of two CHP engines, three generators, two boilers and the flare. Additionally, SHCSR operates under permit EPR/GP3792HY for tankered waste imports.

Non-permitted activities undertaken	Waste activities comprising imports, physio-chemical and anaerobic digestion treatment and waste storage are currently non-permitted activities on-site. Anaerobic digestion is to be permitted under the Industrial Emissions Directive under a Bespoke Installation Permit as Anaerobic Digestion is no longer excluded under the Urban Waste Water Treatment Directive and associated regulations. Permitted Directly Associated Activities include waste import, physio-chemical treatment of sludges and storage of indigenous and imported sludges.
Document references for: • plan showing activity layout; and • environmental risk assessment.	• Environment Agency (2016), Permit with introductory note – EPR/CP3535XU • Southern Water (2020) wastewater Above Ground Capacity Assessment AM410 Part 2.

4.0 Changes to the activity	
Have there been any changes to the activity boundary?	No
Have there been any changes to the permitted activities?	Due to impending changes in the way the Waste Management industry is regulated by the Environment Agency and Natural Resources Wales, STCs are obliged to apply for Fixed Installation Permits under the Industrial Emissions Directive (IED) and comply with new permit conditions by August 2022. Fixed Installation Permits will amalgamate and supersede all current permits and exemptions under which waste is treated on the STC sites (including Environmental Permitting Regime (EPR), Medium Combustion Plant Directive (MCPD), old style Waste Management Licenses, and T21 exemptions). Activities at Millbrook STC and SHCSR will continue, as prior to the introduction of the updated and amalgamated permit, although under any new requirements imposed by the permit.
Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities?	'Dangerous substances' that are used or produced at the Site include: • Polymer • Superfloc C498 Poly • Liquid Odorant (Atom N3 Neutraliser) • Dry Vape (oximax) • Anti-foam • Sodium hypochlorite and sodium hydroxide • Diesel • Lime • Methanol • Methane (produced from the digestors and stored in the on-site double membrane gas holder).

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Checklist of supporting information	

5.0 Measures taken to protect land	
Use records that you collected during the life of the permit to summarise whether pollution prevention measures worked. If you can't, you need to collect land and/or groundwater data to assess whether the land has deteriorated.	
Checklist of supporting information	• Inspection records and summary of findings of inspections for all pollution prevention measures • Records of maintenance, repair and replacement of pollution prevention measures

6.0 Pollution incidents that may have had an impact on land, and their remediation	
Summarise any pollution incidents that may have damaged the land. Describe SW investigated and remedied each one. If information is not available, land and /or groundwater reference data must be provided to assess whether the land has deteriorated.	
Checklist of supporting information	• Records of pollution incidents that may have impacted on land • Records of their investigation and remediation

7.0 Soil gas and water quality monitoring (where undertaken)	
Provide details of any soil gas and/or water monitoring. Determine and discuss whether it shows that the land deteriorated as a result of the permitted activities. If it did, outline how this was investigated and remediated.	
Checklist of supporting information	• Description of soil gas and/or water monitoring undertaken • Monitoring results (including graphs)

8.0 Decommissioning and removal of pollution risk	
Describe how the site was decommissioned. Demonstrate that all sources of pollution risk have been removed. Describe whether the decommissioning had any impact on the land. Outline how you investigated and remedied this.	
Checklist of supporting information	• Site closure plan • List of potential sources of pollution risk • Investigation and remediation reports (where relevant)

9.0 Reference data and remediation (where relevant)	
Say whether you had to collect land and/or groundwater data. Or say that you didn't need to because the information from sections 3, 4, 5 and 6 of the Surrender Site Condition Report shows that the land has not deteriorated. If you did collect land and/or groundwater reference data, summarise what this entailed, and what your data found. Say whether the data shows that the condition of the land has deteriorated, or whether the land at the site is in a "satisfactory state". If it isn't, summarise what you did to remedy this. Confirm that the land is now in a "satisfactory state" at surrender.	
Checklist of supporting information	• Land and/or groundwater data collected at application (if collected) • Land and/or groundwater data collected at surrender (where needed) • Assessment of satisfactory state • Remediation and verification reports (where undertaken)

10.0 Statement of site condition
Using the information from sections 3 to 7, give a statement about the condition of the land at the site. This should confirm that: • the permitted activities have stopped • decommissioning is complete, and the pollution risk has been removed • the land is in a satisfactory condition.

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Appendix A: Site walkover notes

RFI Ref	Site operations	
	No of site staff (day and shift operators etc)	Day – 7 staff (3 technicians) 1 shift 7am-7pm 3 x 7:30 – 4pm Call out 24/7
I15	During what hours is the site staffed Monday – Friday and at weekends?	7-7 365 days
	What hours can waste enter the site (planning)	Sludge pumped from Slowhill Copse Cake imported processed at 7:30-4PM Cake imports can occur at any time
I16	What hazardous waste treatment capacity (tonnes per day) is available on site?	N/A
I17	What non- hazardous waste treatment capacity (tonnes per day) is available on site? This should also include Commercial Waste where appropriate.	
I18	What is the total waste storage capacity (tonnes) at the site? Note: Cake, digestors, other tanks relating to STC)	See photos and Site visit plan
I19	What is the annual waste throughput (tonnes each year) at the site? (TDS volume for the STC)	
I20	For the waste types authorised to be accepted at the site (EWC codes) – List the types of waste required to be listed on each permit.	
121	How many years is each permit expected to be required for? List details of each permit separately	Permanent
GEN07	Please describe the aspects of the site that generate litter, mud and debris within and outside the site boundary.	Site had deposits of muddy debris
GEN08	Describe the site cleaning procedures on site. Including any infrastructure cleaning, wheel wash etc	Site had deposits of muddy debris
GEN09	Please describe the site security measures in place at site.	Automatic gates CCTV (at inlet, generators, Gas Holder, Gates ~10)

	Can you elaborate on the type of fencing e.g. palisade, chain link, barbed wire, and mix of? How high, do they go all around the perimeter? Do they have barbed wire on top? Type of gate, what are the gates made of, height etc? Gate control, CCTV, how many cameras etc	Chain link fencing around at 8ft Visitor sign in at reception
	Site Plans	
GEN13	Please provide a copy of the Site Plan showing the proposed permitting boundary in green. This can be overlaid the Site Layout Plan. The Site Plan will be placed in the permit and needs to show a north arrow, identifiable location indicators (such as roads).	
	Visual impacts	
GEN10	Please describe the visual impacts of each site.	Industrial port area- site setting 'fits' with surroundings
	Site condition report	
SCR02	Please provide a list of permitted activities per site.	See SharePoint Millbrook Folder
SCR03	Please provide a list of non-permitted activities per site. Including exemptions	T21
SCR05	Please provide any environmental risk assessments for site.	N/A
	Emergency procedures	
GEN17	Provide a description of the emergency procedures for each site	Use standard text
	Sludge import	
SV01	Does the site accept trade waste (commercial tankers)?	No
SV01/02	How many tankers arrive at the site per day? Where are the tankers unloaded? Is an odour control hose used during unloading?	Cake tankers 5 x 20t lorries
SV03	Where is sludge imported from? Sludge imported from other satellite sites? How many?	Direct from Slowhill Copse (pipework)
	Please clarify whether safety zoning of areas is undertaken under DSEAR/PEXA at site.	Yes- Details/plans to be provided
	Emissions	
GEN13	Please explain how and where discharges solely of sanitary determinands are undertaken, including details of any treatment prior to	Return to inlet works

	discharging. Include reference to any permissions held for the discharge (permits/exemptions etc).	
	Emissions to land	
GEN20	Please describe where all condensate pipes discharges (typically CHP exhaust , gas bag and digester), including the exact location of the emission and the quantity/rate of discharge. Include NGR is discharges to ground. Include location of inlet works if condensate goes to site drainage. If container used to collect condensate, where and how often, does it get emptied?	Liquor returns to primary tanks 2 condensate pots No discharge to ground
	Exemptions	
	What exemptions are used on site? Typically SW have T21, D5 and S1.	T21
	Cake storage	
SV04	Is any cake imported? If so, how is it unloaded from trucks and where is it unloaded?	5 max on cake imports
SV05	Where is cake stored? How is cake stored? E.g. Cake bays, silos, directly into skips etc	Process immediate, pre-AD Delivered by closed Ro Ros Cake produced on site stored in a silo- not in operation at the moment Stored in alternative bay -skip – approx. 8 tankers a day to remove
	How many cake bays/silos/other are there on site? How long does it take to fill a bay e.g. 4-6weeks?	One silo (two days to fill), one skip for emergency (every 3-4 hours)
SV07	Is the cake treated further after the centrifuge e.g. liming of cake within cake bays?	Liming plant is condemned New plant to be installed Currently sent to Fullerton
SV08	When cake is within the bay, is the cake turned/disturbed at all? How often? Why?	N/A
SV09	How is cake removed from the site? How often? Over what timeframe? e.g. 2weeks constantly	8 tankers a day to remove
SV10	What is the condition of the cake bays? Eg condition of base, height of walls?	N/A

	Does this sufficiently contain the cake? Are there any known issues?	
	Water usage	
SV11	What sources of water does the site use? E.g. potable, secondary washwater, other process water etc What proportion/% of the site's water usage is from this source?? E.g. 2% potable water for polymer make-up and drinking, 98% primary or secondary wash water for other i.e. cleaning etc? What is it used for e.g. poly make-up, washing down etc? Is specifically potable water required for any of the site processes? (e.g. poly make-up)	Potable for emergency showers and poly make up Final effluent for wash down, other site processes, GBT and centrifuges
SV12	Does the site get water from other sources? Abstraction from river etc? How much is permitted to be abstracted/day/hr etc? What is it used for e.g. poly make-up, washing down etc?	No
	Generators	
SV13 - 19	Are there any generators on site? How many and what size (MW)? What are they used for e.g. primary/secondary. Site running, exporting power to grid? Do they export to grid or import from grid to run the site? Is operation of the CHPs temperature sensitive? If yes, what is their optimum temperature range? Is there a temperature above/below which they will not operate? What are their fuel sources? E.g. diesel, biogas, other source How many hours per year do they operate? Any monitoring undertaken? If so, what for and what are the standards used?	3 generators- See permit for details
	CHP engines/boilers	
	How many CHPs/boilers on site?	*Take photos of any plates*
	What size (MW)? What are they used for e.g. primary/secondary. Site running, exporting power to grid?	See permit for details

	Are there any flares? If so how often is the flare used? E.g. during emergency or maintenance of the engines or all the time? Are the CHP's/boilers/ generators adequate for the amount of gas produced by the site? Any monitoring undertaken? If so, what for and what are the standards used? Is operation of the CHPs temperature sensitive? If yes, what is their optimum temperature range? Is there a temperature above/below which they will not operate? What is the annual load of CHP (given as %) for sites in Tranche 3? What is the annual load of CHP (given as %) for sites in Tranche 5?	
	Noise	
I64	Please describe any noise mitigation measures on site.	No
	Other abatement?	No
	Have any noise assessments been undertaken on the site?	No
	Have there been any noise complaints?	No
SV19	Any monitoring undertaken? If so, what standards are used?	No
	Odour	
SV20	Please describe any odour mitigation measures on site e.g. processing of imported sludge immediately, odour control hoses for tankers, water suppression sprays, enclosed processes, doors to buildings kept closed, buildings under negative pressure?	OCU- wet scrubber Use of wet suppressor at storm tanks Dry vapour at storm tanks
SV21	What is the odour control system used – specific to locations on site? Bio-scrubbers/carbon filter etc? What is the media used? Which processes are odour controlled? How and when is the odour control maintained/inspected to ensure they remain effective? Please provide full maintenance schedules for each site	Whole STC (OCU) GBT, Cake blending, Cake bay

Sch 5	Stack height of the OCU	ERG
Sch 5	Emission rate of the OCU (leaving the stack)	ERG
SV24	Is odour monitored? If so how?	No
Sch 5	How are potential diffuse emissions from open storage areas (such as cake storage areas) and open processes prevented or otherwise minimised? (drop heights to the cake bays, open tanks, wall heights)	Emergency cake bay All enclosed at STC Open on WWTW
	Any odour complaints?	2 in 2021 More in 2020 (local facebook group launched)
	Other abatement?	Odour suppression – used if complaints a received and sprays not already in use
OMP02	Please identify the most common sources of odour complaints (i.e. during movement of cake, etc)	Unknown- complaints can be informed to site days later
OMP01	Dry solids range (%), sludge type, sludge pH, and storage time at average throughput for different tanks / processes.	Holding tanks- 2% TSST 7-8% over GBT Blended cake 7-8% AD <4% (retention time 10-14 days) Post AD 25%
	Bioaerosols	
GEN15	Describe the processes and bioaerosol control measures (e.g. odour abatement systems, enclosed tanks, filters) associated with:	Emergency cake bay All enclosed at STC Open on WWTW
	• Sludge reception/transfer of sludge between the vehicles and the facility (including: frequency of deliveries and collections, and types of vehicles used to transport waste; proportion of water within the sludge cake delivered to site etc)	Covered lorries for cake. Sludge through pipework direct form Slowhill Copse
	• Handling and storage of sludge/digestate throughout AD process	
	• Disposal of biogas (combustion)	
	• Any other relevant procedures onsite which could generate bioaerosols	

	If using odour suppression sprays are they used to just mask the smell or to catch and drop the odour?	Mask the smell and suppression
	Is sludge arriving on site processed immediately? If not how long is it until it is fed into the system?	Yes
	Pests	
SV25 & GEN12	Does the site experience pests and if so what are they (birds, vermin etc)? What measures are in place to prevent/control pests? What measures are in place to remove pest issues? What's the frequency of visits by a pest control contractor?	Rats- Rentokil present the week before Rat boxes 2 visits in the last 6 months
	Raw materials – Write here or refer to table at the bottom	
I35	Will operations require raw materials? What raw materials are used on site? List all including diesel, poly, lime etc Try to get the proper chemical name as well as what it is referred to.	See table at end of form
I36	How much is stored on site of each at any one time (maximum tonnage)?	See table at end of form
	What is each material used for?	See table at end of form
SV26	How and where are they stored? Bunded, stored undercover etc? Are they in IBC's, bags, tanks etc?	Bags indoors IBCs on pallets Oils- see photos
SV27	What is the storage capacity of tanks, IBC's etc, how many on site?	See table at end of form
	How often are they replaced?	See table at end of form
I38	Describe the basic measures for improving energy efficiency of the activities carried out on site	See below I38
	Resource efficiency	
I41	Explain and justify the raw and other materials, other substances and water that SW use at site	ASP reaching end of life and efficiency is reducing- use of raw materials to get ASP to work correctly All issues onsite connected to the BNR plant- simple problems but difficult to solve
SV28	Describe waste avoidance and waste recovery measures (for the whole site operations, including	

	staff generated waste). Describe how waste is disposed, by whom. This relates to all wastes generated by SWS operations on site – e.g. wash water, screenings etc	
	Any water saving measures?	Final effluent is used
	Combustion	
I43	Does the site have an aggregated net thermal input of combustion plant/s more than 20MW?	No
	Site Plans and Processes	
I52	Please explain the waste treatment processes carried out on site, the associated environmental risks and how these are managed/mitigated for each site	See AM410
	Risk Assessment	
I55	Please provide any existing environmental risk assessments relating to the operations of the site	Check with Pollution Team
I57	Please confirm whether the site sources all water or a proportion of water through surface water or ground water abstraction.	No abstraction
I61	Please provide details of the tanks on each site, their contents, how they are maintained, capacity and specification (e.g bunding features) What are the age/condition of tanks?	Condition of tanks was good- no sign of corrosion, tanks stored in containers
I62	Please provide details of all environmental incidents that have occurred within, or near the site, including any fires and spills. Please explain how these were handled and any environmental impacts identified following the incident.	~3 years the uplift station stopped working and primary tank overspilled. The pumps before the tanks failed and failed to send to storm tanks Solution: hard wired to have fault alert
I63	Please describe any noise mitigation measures on site	N/A
GEN03	Please provide historical flood records for all sites Are these events recorded anywhere e.g. site diary/log How often are flooding occurrences – e.g. monthly, during heavy rainfall?	Back up of drains on site during storm event and high tide last year- first event in at least 20 years Drains have been checked for blockages Millbrook Road at risk of flooding- if inlet wells reach a certain level, may be an issue with sewer off-site, but this isn't not certain.
	Health and Safety	

	Is SCADA used on site? What processes are covered by SCADA?	Whole site on SCADA
Sch 5	Does the site have a Leak detection and repair plan? What are the methods for locating unknown emission sources? What are the monitoring methods and frequency of monitoring to quantify significant emissions? What are the leak mitigation measures? (maintenance programme etc)	No formal process on site Site does have signs of where methane leaks may be present
	Digesters	
	How many digesters on the site?	4 digesters
	Digester capacity	3 with 2,500 m3 capacity 1 with 3251 m3
SV29	Any Wesso valves? How many? Any temperature sensitivity observed in the Whesso valves? (previously we have heard of Whesso valves freezing below -5^{o}C)	14 total – 8 on the 4 digesters, 4 on the two PDST, 2 on the gas holder AD no.4 send condensation to CHP if temps are above 37c
SV30	Any monitoring of tanks/gas? Is there an alarm system attached to the Whessoe valves (inform SCADA when operational)?	PDSTs are alarmed SCADA used to alert
	What is the ground like surrounding the tanks? E.g. permeable gravel, concrete etc	Gravel
SV31	Underground pipework for digesters? Known condition?	Yes, condition not kown
	Is biogas generation managed by reducing the digester feed in the event that the flare stack and/or CHP engine failed and caused the Whessoe valves to release biogas?.	Flare stack is used in such an event
	Drainage	
	Where do the drains go? E.g. Head of the works	To inlet works
	Is site adjacent to a river or stream?	Yes- but main road between site and water
	Is the whole site bunded	Not bunded
	Are there any cracks in the pavement	Some present- see photos
SV31	Any other underground pipework? Condition known?	Unknown
GEN21	Please describe whether all drainage (surface or foul water) will be captured by the onsite drainage systems.	To inlet works.

		Slight pooling of water on site (see by sludge storage tanks/skip photo), bunding curbs in place
GEN21	Please describe the drainage surrounding the cake storage bays and whether run off from there is also captured by the drainage system.	N/A, no bays
SV32	Are there any isolation valves, penstock etc operational that can isolate flows? If so where and in what circumstances are these used?	
	Abnormal conditions – extreme high temperature, flooding (Climate Change RA)	
SV36	How large is the site's stormwater storage capacity? OR how much retention time do the storm storage tanks allow? Have there been any issues in the past with direct discharge to the watercourse when stormwater storage capacity has been exceeded, occurring repeatedly?	Check – 3,274m3
CC01	Has the site previously experienced any flooding incidents? If yes, is there information on these? When, how frequent, how severe has flooding been. Has the flooding led to untreated wastewater being discharged to the watercourses due to high volume of water exceeding the storm storage capacity?	One flood event in 20 years, see GEN03
CC07	Is the access route to the site (main road access) at risk of flooding? Has it flooded previously? Are there alternative access routes?"	Main road- one access point No flooding issues
CC03	What wastewater flow is the site rated at? What is the pass-forward' flow?	850 l/s (This is due to increase in the future, not before the permit is issued)
CC06	Does the site require potable water for any of its processes?	See SV11
SV38 & CC02	Has the site experienced any issues related to high temperatures in the past – e.g. any odour control issues? Or Potable water availability issues during drought?	No
	Waste generation	
	What wastes are generated by the site?	Rag and Grit -skip General waste-skip

		Metal -skip WEEE-skip Oils- drums
	How is it stored?	See above
	Other	
SV39	Has any ground investigation/monitoring been undertaken on the site eg for planning permissions? Are there any available monitoring boreholes?	Not known
	Planned AMP7 schemes for the site that may impact the permit application?	Currently demolishing the two FE tanks + including UV Planned to increase stork tank capacity to decrease the spills to the environment Install new Final tanks/primary tanks Install new Grit King
	What is the general site infrastructure like? Any areas of concern?	Presence of leak on sludge storage tanks - such tanks (including digesters) are surrounded by gravel No noticeable spills on the ground/hardstanding- however some areas obscured by debris or moss. Storage of unknown liquid chemicals on site, could be knocked over, no protection from the elements, placed on gravel and not hardstanding. Site is 'worn' but limited cracks. Mud Debris due to limited effective cleaning could be influencing pooling of water.
	Age of site? What infrastructure is enclosed?	1930s

MOTT MACDONALD

Appendix B: Envirocheck report