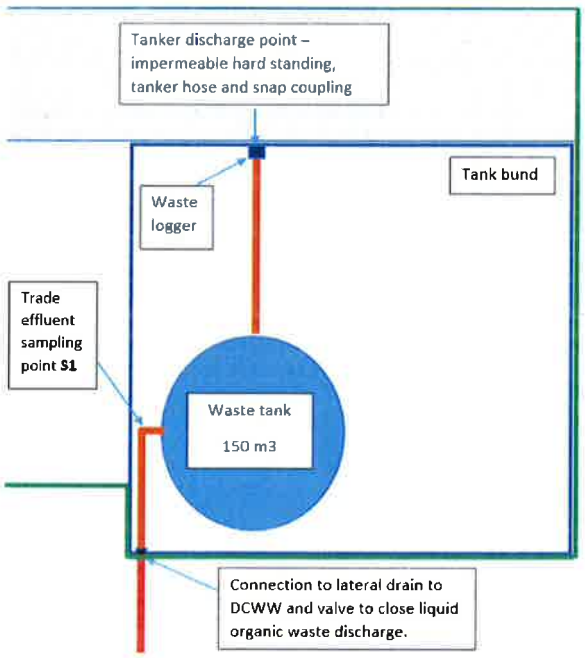
2. Emissions to Air, Water and Land

Emissions released

- **Point source emissions to Air** – there are no point source emissions to air from the discharge of liquid waste. The waste will be discharged direct to a storage/blending tank, which is covered. There will be an air vent to atmosphere from the storage tank but emissions will be negligible and considered fugitive. We will monitor for possible odour issues and a site specific odour complaints and investigation procedure is in place.
- **Point source emissions to water (other than sewers)** – there are no point source emissions to water. Any surface water is contained (bunded area) and returned to the waste storage tank. Outside the bunded area the permitted area is covered in impermeable hardstanding and site drainage is contained and discharged into the Waste Water Treatment Works (WwTW).
- **Point source emissions to sewer, effluent treatment plants or other transfers off site –** there is a trade effluent discharge point for the liquid waste (S1). The trade effluent connection point is into the public trunk sewer via a lateral drain. The discharge will be controlled by a trade effluent agreement.

Emissions to Sewer – Emission point S1

The liquid waste accepted to Newport Liquid Waste Centre will be discharged under a trade effluent agreement to Nash WwTW. The liquid waste will be stored and blended in the storage tank on site and tested for COD/Suspended solids/pH/Ammonia/Metals using the onsite lab before discharge to Nash WwTW, under a controlled rate. Trade effluent sampling point S1, where a spot sample can be taken and a 24 hour composite sample will also be taken for DCWW to monitor and regulate the discharge.



The liquid waste will undergo further biological treatment through the WwTW

Nash WwTW final effluent discharges to Julian's Pill – Usk Estuary (NGR ST33458411) under a Water Quality permit. DCWW has agreed the discharge from Newport Liquid waste Treatment centre and has set trade effluent limits to ensure the treatment works is not overloaded or treatment is inhibited and the water quality permit limits are not breached.

Trade effluent agreement

DCWW have set trade effluent limits for the following parameters –

Emission Point and location	Source	Parameter	Trade effluent limit	Units
S1 – Trade effluent discharge – discharge pipework to DCWW trunk sewer	Liquid Waste Treatment centre	COD	100,000	mg/l
		COD Load	3,600	kg/d
		Suspended Solids	6000	mg/l
		Total Phosphorus	10	mg/l
		Chromium	2	mg/l
		Copper	2	mg/l
		Lead	2	mg/l
		Nickel	2	mg/l
		Zinc	2	mg/l
		Tin	2	mg/l
		Metals Load	0.72	kg/d
		Sulphate	1800	mg/l
		Sulphide	1	mg/l
		Chloride	5000	mg/l
		FOG	500	mg/l
		TPH	50	mg/l
		PH	6-11	pH units
		Detergents	100	mg/l
		Ammonia	2000	mg/l
		Ammonia load	180	kg/d
		Maximum Daily volume	360	m3/d
		Maximum discharge rate	20	l/s

H1 Assessment – Summary

The discharge from the liquid waste treatment centre enters Nash WwTW where the trunk sewer terminates and is mixed with domestic and urban waste water before entering the WwTW.

Nash WwTW has a permitted dry weather flow (DWF) of 57900 m^3/d and discharges to Julian's Pill (NGR ST3345084110), which is a tidal watercourse (coastal/Estuary Trac discharge).

The trade effluent agreement has a daily maximum volume of 360m3/day which is 0.6 % of the total discharge volume of the WwTW. Trade effluent limits have also been set for concentration and load to ensure there is minimal impact on the WwTW biological treatment, so not to overload the plant or to have an inhibitory effect on biological activity.

The H1 assessment was carried out to assess the impact of the discharge from Newport Liquid Waste Management centre on the receiving watercourse – Usk Estuary.

H1 assessment is included in the permit application and a summary of the tool is below –

Company Name:	Welsh Water Organic Waste Limited
Location:	Newport Liquid Waste Treatment Centre
Permit Number:	

Describe the Objectives

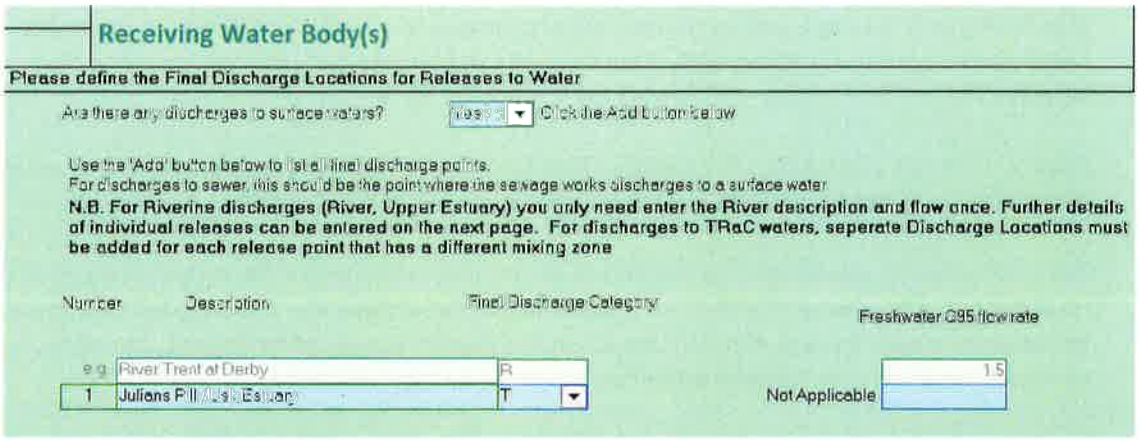
Depending on the reason for the assessment you will need to complete different parts of the tool.

Select the type of assessment:

(•) a)	to carry out an ENVIRONMENTAL ASSESSMENT of the releases resulting from the facility as a whole	Do Steps 1, 2 and 3 only
( ) b)	to conduct a costs/benefits OPTIONS APPRAISAL to determine BAT or support the case for derogation under the Industrial Emission Directive.	Do Steps 1,2, 3 and 4 and continue with 5 and 6 if necessary

1.1 Briefly summarise the objectives and reason for the assessment in terms of the main environmental impacts or emissions to be controlled:

Main emission from the site is a trade effluent discharge into Nash WwTW. Liquid waste will be stored and mixed/blended in a liquid waste storage tank on site and tested before discharging to Nash WwTW whre the waste will be further treated biologically through the WwTW.



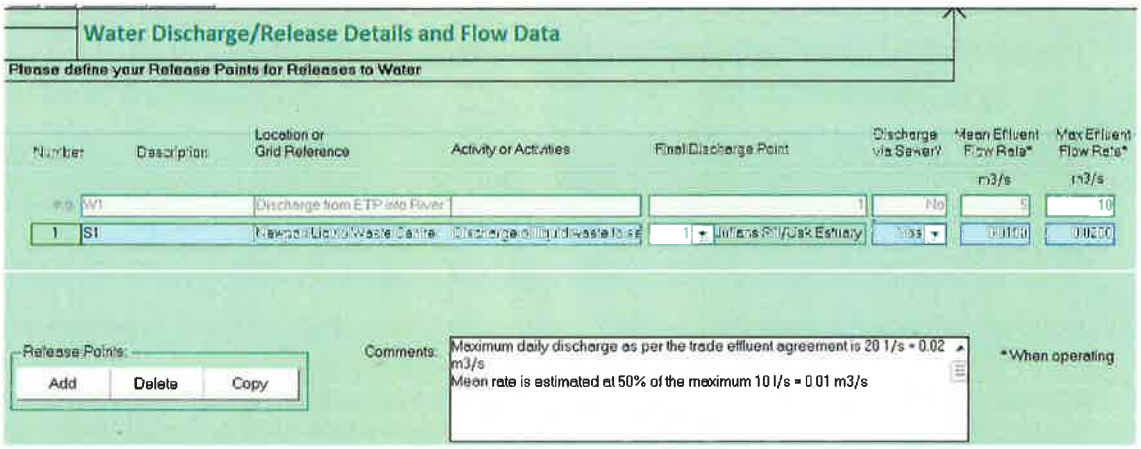
Receiving Water Body(s)

Please define the Final Discharge Locations for Releases to Water

Are there any discharges to surface waters? Yes | Click the Add button below

Use the 'Add' button below to list all final discharge points.
For discharges to sewer, this should be the point where the sewage works discharges to a surface water
N.B. For Riverine discharges (River, Upper Estuary) you only need enter the River description and flow once. Further details of individual releases can be entered on the next page. For discharges to TRaC waters, seperate Discharge Locations must be added for each release point that has a different mixing zone

Number	Description	Final Discharge Category	Freshwater Q95 flow rate
e.g.	River Trent at Derby	R	
1	Julians Pill/Usk Estuary	T	Not Applicable



Water Discharge/Release Details and Flow Data

Please define your Release Points for Releases to Water

Number	Description	Location or Grid Reference	Activity or Activities	Final Discharge Point	Discharge via Sewer?	Mean Effluent Flow Rate* m3/s	Max Effluent Flow Rate* m3/s
e.g.	W1	Discharge from ETP into River		1	No	5	10
1	S1	Newport Liquid Waste Centre	Discharge of liquid waste to se	1 Julians Pill/Usk Estuary	Yes	0.0100	0.0200

Release Points: Add | Delete | Copy

Comments: Maximum daily discharge as per the trade effluent agreement is 20 l/s = 0.02 m3/s
Mean rate is estimated at 50% of the maximum 10 l/s = 0.01 m3/s

*When operating

Maximum daily discharge as per the trade effluent agreement is 20 1/s = 0.02 m3/s
Mean rate is estimated at 50% of the maximum 10 l/s = 0.01 m3/s.

Release Concentrations of Substances Present in Discharges to Water

Please list all Substances released to Water for each Release Point identified in the previous page.

Which type of assessment method are you using? (See help box & H1 Annex D for information) Continue with the method below

Method: Chemical Specific

Reference:

Number	Substance	Meas'ment Method	Operating Mode (% of Year)	Average Concentration in the Effluent (AA) Conc. µg/l	Meas'ment Basis	Maximum Concentration in the Effluent (Max) Conc. µg/l	Meas'ment Basis	Annual Rate kg/yr	Sewage Treatment Factor	Significant Load (PHS Only) kg/year
e.g.	chromium	Estimated*	continuous	0.20	annual avg	0.20	15 minute	360	1	1
1	Chloride	Spot	100.0%	1000000	Annual Avg	5000000		315360	1	
2	Chromium III (9	Spot	100.0%	333	Annual Avg	2000		105.01488	0.52	
3	Cobalt	Spot	100.0%	333	Annual Avg	2000		105.01488	1	
4	Copper	Spot	100.0%	333	Annual Avg	2000		105.01488	0.21	
5	Lead and it's c	Spot	100.0%	333	Annual Avg	2000		105.01488	0.17	
6	Nickel and its c	Spot	100.0%	333	Annual Avg	2000		105.01488	0.76	
7	Tin (inorganic)	Spot	100.0%	333	Annual Avg	2000		105.01488	1	
8	Zinc	Spot	100.0%	333	Annual Avg	2000		105.01488	0.33	
9	Ammonia (≤ 50	Spot	100.0%	500000	Annual Avg	2000000		157680	0.08	

Substances: Add | Delete | Copy

Comments: Maximum concentrations based on trade effluent limits, average concentraion for metals and ammonia based on the trade effluent load limit (kg/day)

Water Impacts - TRaC Water Releases

Apply Test 1 (See Guidance) and Calculate Process Contributions of Emissions to Water

This table applies Test 1 and also estimates the Process Contribution for releases in to saline waters. this is calculated after dilution into the relevant surface water type for each emission to water listed in the inventory, according to the release point parameters input earlier. If you have more accurate data obtained through dilution modelling, this may be entered as indicated and will be used instead of the estimated PC. Any releases which 'Pass' Test 1 are screened out at this point.

Substance	Annual Avg EQS Release µg/l	Annual Avg EQS EQS	Annual Avg EQS Release conc < 100% EQS Test 1	MAC EQS Release µg/l	MAC EQS EQS	MAC EQS Release conc < 100% EQS Test 1
[S1] Ammonia (≤ 50mg/l CaCO3 (90 %ile)) (Julians Pill/Usk Estuary)	500000		N/A	2000000		N/A
[S1] Chloride (Julians Pill/Usk Estuary)	1000000		N/A	5000000		N/A
[S1] Chromium III (95%ile) (dissolved) (Julians Pill/Usk Estuary)	333		N/A	2000		N/A
[S1] Cobalt (Julians Pill/Usk Estuary)	333	3	Fail	2000	100	Fail
[S1] Copper (Julians Pill/Usk Estuary)	333	3.6	Fail	2000		N/A
[S1] Lead and it's compounds (Julians Pill/Usk Estuary)	333	1.3	Fail	2000	14	Fail
[S1] Nickel and its compounds (Julians Pill/Usk Estuary)	333	8.6	Fail	2000	34	Fail
[S1] Tin (inorganic) (Julians Pill/Usk Estuary)	333	10	Fail	2000		N/A
[S1] Zinc (Julians Pill/Usk Estuary)	333	5.0	Fail	2000		N/A

Water Impact Screening - TRaC Releases

TRaC Tests 3 - 5

This page applies Tests 3 to 5 of the methodology for assessing TRaC Waters

Description	Is the discharge to a location with restricted dilution /dispersion characteristics	Is the discharge to a location less than 50m offshore or to a location where the sea bed is less than 1m below	Is the discharge negatively buoyant
S1	No	Yes	No

Test 1 has not screened out the 6 of the metals that liquid waste may potentially contain. The final discharge location is less than 50m offshore (Julian's Pill NGR ST33458411) therefore further screening through H1 could not be carried out.

The concentrations used in H1 are based on maximum trade effluent concentration and load limits. Metals concentration will be relatively low as the main types of waste accepted are readily biodegradable wastes. Pre acceptance testing will ensure wastes with metals concentration which would breach the trade effluent agreement limits will be screened out and not accepted at site.

DCWW have set trade effluent limits that will not significantly impact the WwTW biological treatment or over load the site and impact the water quality permit limits.

The current water quality permit for Nash WwTW has the following Metal concentration limits –

- 0.2 mg/l total Zinc
- 0.02 mg/l total lead
- 0.06 mg/l total chromium
- 0.04 mg/l total copper
- 0.14 mg/l 0f total nickel

Due to the low discharge volume from the liquid waste site (max daily discharge 360m3/day which equates to 0.6% of the consented DWF of 57900m3/day for Nash WwTW) and appropriate trade effluent limits, both concentration and a total metals load limit (kg/d) and the treatment capacity of Nash WwTW, we have not carried out detailed modelling.
Trade effluent limits have been set to protect the WwTW and the receiving water course.
The limits take into account the WwTW capacity and the EPR water quality permit for the final discharge from the WwTW.
The liquid Waste treatment centre will be monitored, a spot and a composite sample will be analysed on a daily basis and the discharge regulated by DCWW trade effluent team, the overall risk to the WwTW and the receiving watercourse is low.

Fugitive emissions

It is not anticipated that there will be significant fugitive emissions from the liquid treatment centres operations.

We have considered the following potential fugitive emissions and nuisance issues that may arise from site and control and monitoring of these potential issues will be included in the site IMS –

- **Odour** - Possible sources of odour are when tankers are offloading and through an air vent on the waste storage tank. Both these sources are anticipated to be insignificant due to the minimal exposure to atmosphere. There are local residential receptors and businesses in close proximity - an odour complaints and investigation procedure is in place. We will also work closely with DCWW who also have a comprehensive complaints procedure in place, which the public can report any issues arising from the WwTW site in general.
- **Noise** – Potential noise sources from tanker movements and tankers offloading. There may be a slight increase in current site activity but not significantly. The WwTW site has a traffic plan and maximum speed limit which all vehicles have to adhere to. When tankers are stationary, signing in at reception/sampling etc. engines will be required to be switched off. Operationally the liquid treatment centre does not have significantly noisy equipment. There will be one mixer for the storage tank, which manufactures guidance indicates noise will be minimal. Once operational a noise survey will be carried out and any remedial recommendations carried out.
- **Litter/Dust/Pests –** The liquid waste treatment centre is compact in size and it is not anticipated that it will significantly increase litter/dust/pests at site. There is a pest

control contract in place for the WwTW and the liquid organic waste site will implement good housekeeping and site rules to ensure litter is collected and disposed of.

3. Operating Techniques

3a Technical Standards

Technical standards consulted include -

- How to comply with your environmental permit (EPR 1.00)
- Guidance for the recovery and disposal of hazardous and non-hazardous waste Sector Guidance Note S5 06

3b General Requirements

Environmental Risk Assessment

A risk assessment has been carried out. The assessment includes each Hazard identified and the receptor that is impacted and mitigation measures that are in place to minimise the risk.

Hazard	Receptor	Pathway	Likelihood	Consequence	Risk Management /mitigation measures	Final Risk
Emissions to Air	Onsite staff/Nash Village/local industry	Airborne	Low	Air pollution/ odours	No direct emissions to air Only non-hazardous liquid waste accepted. Covered storage tank/not accepting highly odorous wastes, odour complaints and investigation procedure in place.	Low
Emissions to water	Surface water	waterborne	Medium	Contamination to surface water/ groundwater/ impact to the WwTW – biological treatment	No direct discharge /any spillage from storage tank contained within bund/outside bund impermeable hard surface, spill kits and on site drainage returns to the WwTW.	Low
	Ground water		Low		No direct discharge Permitted area covered in Impermeable hardstanding and surface water directed to site drainage/contained in bund	Low
	Sewer		High	Breach TE agreement, Impact to WwTW biological	Trade effluent limits and on site monitoring/ composite sampling/lock off valve to stop discharge	Low

				treatment and the receiving watercourse		
Emissions to Land	Groundwater/ Land	Spills/ Leaks/ cracks in hard surface	Low	Contamination	No direct emissions to land. The permitted area covered in impermeable hard standing and the storage tank is bunded Maintenance and inspection procedures in place to monitor and assess site infrastructure	Low
Noise	Nash village/on site staff/local industry	Airborne	Low - if complaints received issue will be investigated and resultant actions completed	Nuisance	Minimal plant – 1 small mixer 3kw, will be assessed once site is operational. Tankers movements and offloading of waste – activity currently undertaken on site restricted to 8 am – 5pm. Traffic plan and speed limit for the whole site in place. Complaints procedure in place	Low
Odour	Nash village/on site staff/local industry	Airborne	Medium	Nuisance	Covered storage tank Very odours wastes will not be accepted Odour complaints and investigation procedure in place. In the event that odours are detected investigations will be carried out to determine cause and remedial action taken. This forms part of the IMS.	Low
Storage of liquid waste – leaks and spillage	Surface water/ Groundwater/ Land	Liquid/ Water-borne	medium	Pollution to land, groundwater and surface water	Impermeable hard standing in place – maintenance and inspection procedure part of IMS. Storage tank has been inspected and refurbished before operation. Maintenance and inspection procedures are part of IMS. Level sensor will alarm high level to prevent overspill. Tank bunded for 110% of capacity.	Low
Spillage of liquid waste	Surface water/	Liquid/	High	Pollution to land,	Impermeable hard standing in place –	Low

from Tanker offloading/ Tanker accident	Groundwater/ Land	Water-borne		groundwater and surface water	maintenance and inspection procedure part of IMS. All site drainage directed to WwTW internal drainage. Spill kit and procedure in place.	
Litter /Pests /dust	Nash village/on site staff/local industry	Airborne and migration	Low	Nuisance	Pest control contract implemented on site. Good housekeeping implemented, litter bins and site rules in place.	Low
Vandalism/ Fire	DCWW/ WWOWL	Intentional vandalism and damage by intruders trespasser who could cause damage/harm/fire	medium	Damage to site and potential impact to operation	The main site has security fob entry. CCTV at main site entrance. Secure perimeter fencing in place. All visitor required to sign in at main reception/tanker drivers at WWOWL office. No combustible material stored in permitted area Fire plan in place Maintenance and inspection procedures as per IMS for all electrical equipment.	Low
Flood	Surface water/Ground water	Land	Medium	Pollution and damage to site	Only Non Haz waste accepted – due to influx of water waste would be highly diluted and pollution impact should be minimal	Low
Out of spec waste/ Breach of TE Limits	DCWW /WWOWL	Liquid waste that could impact WwTW – overload or inhibit biological treatment	High	Impact to the WwTW process and the receiving watercourse	As part of the IMS – following assessment will take place - • Pre acceptance testing • On site acceptance testing. • On site lab testing. • Quarantine procedure for non-conforming wastes • Composite sampling of trade effluent discharge • Storage tank can be isolated and out of spec waste tankered off site.	Low

The risk management measures identified will be documented in the site IMS, there are site procedures and relating forms to manage the potential risks and issues.

Sensitive receptors

Residential – There are residential properties to the south east of the liquid waste site – the closest being a farm house on West Nash Road, approximately 400 meters from the liquid treatment site boundary. Nash village is also to the south east of the site approximately 690 meters from the site.

The Newport/Usk sailing club is approximately 630m meters to the west of the liquid waste site.

RSPB Visitors centre is approximately 532m to the south west.

Industrial Land use

Below is a table with a summary of location of industry and proximity to the site

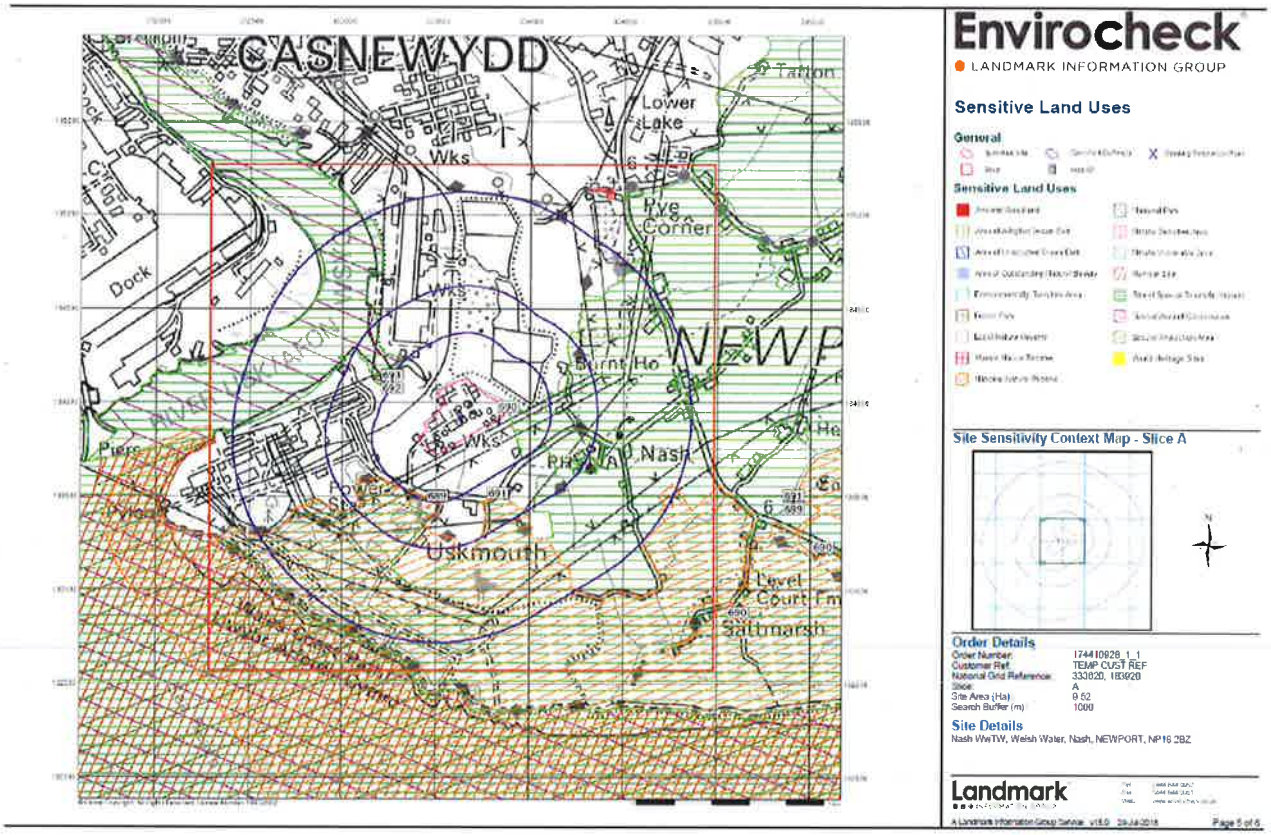
Site	Location to site	Industry	Distance (Meters)
Uskmouth Power Station	South West	Wind Power	295
Siemens	South West	Electricity company	295
A.G. Thomas and sons	South East	Dairies	354
Liberty Steel	North	Steel manufactures	729
W.T. Jones Transport Limited	North East	Road haulage and distribution services	967

Habitats

Below is a table with a summary of habitats sites location and proximity to the site

Site	Location to site	Designation	Distance (Meters)
Newport Wetlands	South	National Nature reserve	218
Gwent Levels - Nash and Goldcliff	East	SSSI	30
Newport Wetlands	South East	SSSI	236
River Usk	North West	SSSI/SAC	256
River Usk	North West	SAC	256

An Envirocheck report of the area provided a map of sensitive land use in the area which shows the relevant habitat sites.



The site risk assessment has taken into account the site location and proximity of sensitive receptors. Due to the low risk nature of the site operations, no significant impacts have been identified. Nuisance risks such as noise, odour, pests etc. will be managed through site procedures as part of the IMS and active monitoring and good housekeeping.

The discharge of liquid waste for biological treatment through the WwTW which could potentially impact the the receiving water course directly, will be significantly controlled, from initial pre acceptance testing of liquid waste before it is accepted to site and on-going testing and monitoring from when it arrives at site, discharged to Nash WwTW and final discharge to the Usk estuary.

4. Monitoring

Point source emission to sewer – discharge point S1

The point source emission arising from site is the discharge of liquid waste to sewer.

Tankered liquid waste is stored on site in a 150m^3 storage tank and discharged under a control rate to the trunk sewer where it terminates at Nash WwTW.

The monitoring of the liquid waste will be significant and a major part of the operation and control of the liquid waste treatment centre.

- **Pre acceptance testing** – each waste stream will require full laboratory testing (to an accredited external lab) and a description of how the waste is generated and estimated daily tanker volume for an assessment to be carried out to determine if the waste is suitable to be accepted at site. We are primarily looking at biodegradability, any inhibitory effect to the WwTW and compliance with the trade effluent limits and permit conditions (i.e. waste code). The pre-acceptance testing will confirm if the waste is suitable and will also risk assess frequency of ongoing testing/monitoring – we will continue to carry out full laboratory testing of the waste to ensure consistency and determine the concentration range.
- **Site acceptance testing** – if the waste stream is assessed as suitable we will accept at site. When the tanker arrives at site, we will take a sample from the tanker and carryout on site tests for the following –
  - pH
  - Odour
  - Appearance/visual solids

  We also have a site lab that can analyse for COD, Suspended solids, consented metals, ammonia and total phosphorus. Depending on the nature and strength of the waste, we will carry out a full suite of testing. This is determined at the pre-acceptance stage.

  To validate on site testing we will periodically send sample to an external accredited lab. This is to confirm on site lab testing is accurate and confirm consistency and range of concentration of the waste. The frequency external laboratory testing is risk based, dependent on the volume and concentration of the waste.

  Samples taken will be stored in the lab fridge for 5 days.

- **Quarantine/Rejection** – If the waste arrives at site and on-site testing determines it is not suitable and does not conform with the pre-acceptance testing the waste tanker will be quarantined and when a suitable disposal route determine rejected from site. Full procedure is documented in the site IMS.
- **Trade effluent compliance sampling** – as part of the trade effluent agreement we will take a 24 hour time related composite sample for testing. The composite will be taken from emission point S1 for the duration (every 15 minutes) of the discharge of liquid waste from the storage tank to sewer. We will analyse on site on a daily basis and retain a sample for 5 days in the lab fridge. DCWW Trade effluent team will also take a portion of the composite and a spot sample and regulate under the trade effluent agreement.